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EDITED BY

G. STANLEY HALL
President of Clark University and Professor of Psychology and Education

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THE

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CO-EDUCATION AND HYGIENE WITH SPECIAL REFERENCE TO EUROPEAN EXPERIENCE AND VIEWS

By Prof. Leo Burgerstein, Vienna, Austria

Wherever sexes in nature are diclinous, the individuals ot one sex compete with those of the other. This is a sound state of things from the point of view of selection. But with the human race it seems as if in the centres of civilization the sexes as such engage in a struggle for life. Whether that promises a healthy state of things is to be doubted.

The question of an equal higher education for both sexes is a modern one. It has different sides, *e. g.*, an ethical one and a social-political one, and I suppose that one does not go far wrong in thinking that the practical social aspect, at least in Europe, has influenced the movement very greatly.

It is not my business to deal with the various sides of the question; I intend to speak of the hygienic point of view and its practical consequences for schools.

Everybody who wishes to get to the bottom of the question must fix his attention upon the secondary sexual characteristics and qualities. I do not wish to go into the matter in all the details so often spoken of, such as the difference of absolute and relative weight of the brain, the density of the cortex of the cerebrum, the difference of specific gravity of the blood, and so on. I may pass over the consideration of these subjects with less hesitation in this country since English possesses the exhaustive book on Man and Woman by Havelock Ellis. But in any case I think I must first of all consider some psychical points.

Whatever any one may think concerning the dependence of the psychical upon the physical, experience and exact investigation point in the same direction, namely, indicating that female nature is not artificially inoculated by education; it is a matter of fact well known to every one that, *e. g.*, the development of the faculty of speech is quicker in female than in male children, the selection of games offers another example, and so on.

We who are present here are naturally specially interested in the differences during school years, and first, as they touch hygiene. It is true, however, that up till now far too little work has been done in the way of exact investigation, and we still need very many stones and often better cut with which to build our building. On the other hand, the inquiries in regard to certain psychological abilities in boys and girls, like the investigations of Bolton, Netchajeff, Lobsien, and others, though valuable do not exactly belong to the subject of hygiene in co-education. The existing experimental investigations upon our question are of different values in consequence of the different methods used, the number of individuals tested, and so on, and the results of the investigations are sometimes far from having only one significance. The question is the more difficult, since the results are far more trustworthy where the girls and boys have been developed under analogous psychical conditions. It is just the co-education schools themselves that would be our greatest help. That is the reason why I shall take special notice of such results.

It will generally be admitted that the psychical variability of the male type is greater than that of the female. The experience of persons who have occupied themselves during many years with the education of both sexes points in the direction that the differences of female scholarship are not so great as in the male; we have in German the words "Wunderkind" and "Wunderknabe," that is to say prodigy child and prodigy boy, but no such word for prodigy girl. Indeed there have been a number of such male youthful prodigies in mathematics or musical composition; and a further proof of the greater variability of the male children is, that the unfavorable abnormalities are more frequent with the male than with the female. Warner has made an investigation on about 50,000 children, nearly the same number of each sex, and found in round numbers 21% (20.8) of the boys but only 16% (15.6) of the girls defective. The analogous result as to bodily condition is shown in the valuable work of Gulick and Ayres on medical inspection of schools; if one omits the evils which are to be considered as having been acquired in consequence of the minor resistance of girls, the percentage of the 4,305 boys having defects is higher than that of the 3,301 girls. Gulick himself makes a very just remark in regard to this. In Belgium the punishment of boys and girls in the orphan asylums was recorded and it was found that 31% of the boys, but only 26% of the girls had required punishment.

The classical country for co-education in high schools in Europe is the grand duchy of Finland in Russia, a country of very great culture, in which co-education in high schools has existed since 1883 and where, in 1908, there were 33 such high schools with a total of 3,569 girls and 2,863 boys. In the school year 1890-91 the first contingent of co-educated high school pupils were sent to the university. Lucina Hagman, an experienced female teacher in the Laeroverk för gossar och flickor, one of the oldest co-educational high schools at Helsingfors, has published articles on the question and is anything but averse to co-education; she says quite openly that boys show more aptitude and inclination for one special subject or another, whilst girls generally try to study all subjects in an equally careful and diligent way.

It may be that the smaller psychical variability of girls in comparison to that of boys is also connected with the greater suggestibility of the girls. In the old Helsingfors co-education school they say that it seems as if the boys had an innate tendency not to accept anything as true and to think that they have the right to doubt everything. From certain experiments of Gilbert, in New Haven, with hundreds of young people of from 6 to 17 years of age one can also judge that girls are more easily influenced by suggestion than boys.

As significant may be quoted also the breaking out of certain psychical epidemics, especially in girls' schools and, in exceptional cases only, spreading also to boys' schools. Trembling epidemics (tremor hystericus) have occurred in girls' schools in Basle in Switzerland in 1901 and 1904, where the girls fell, one after another, into a condition characterized by trembling of the extremities, which lasted for minutes or even hours. The same epidemics broke out in Meissen in Germany in 1905, 1907, and 1908, in Leipsic in 1907, in Frankenhausen in the same year, and in 1890 and 1892 even in two schools in villages. In a girls' school in Biberach in Germany in 1891 one girl fell into a state of hysteric somnolence, 13 others followed, so that they could not be awakened even by pricks of a needle, but one after the other walked about the room as if in a state of trance. Once in Munich the girls in one classroom bit the ends of their plaits of hair because they believed their voices would thereby become clearer, and the girls of a Hamburg high school ate scraped chalk to obtain a fine complexion.

It is certainly remarkable that such singular youthful neuroses found in girls' schools have only there a great suggestive influence. It may be a consequence of the greater suggestibility that the power of application comes more easily to girls than boys. I quote some examples. Laser, in Königsberg, made investigations upon 112 girls and 114 boys of about 11 years, using certain simple counting operations once proposed by the author because they permit good control of quality and quantity of work. He gained better results with the girls than boys. What Miss Holmes found in the psychical laboratory of Leland Stanford University led to a similar conclusion. In each of the 10 months of the school year, for three years, Schuyten made the following experiments in a series of Antwerp schools: Boys and girls of from 7 to 14 years were required to perform some task lasting in each case 5 minutes, which enabled him to discover the percentage of pupils whose attention was spontaneous. The result was that the curve of attention with the girls showed, in every one of the 10 school months, a higher level than that of the boys. Long before this, a result in the same direction was obtained by Riccardi, in Bologna, who stated the relation between the industrious girls to boys as in the ratio 3:2. When walking through the corridors of the Vienna University one may get the impression from the number of lady students one sees there that there must be a high percentage of female students, but statistics show that there are only 5½%. The fact is that ladies are more regular in coming to the lectures, whilst an appreciable number of male students prefer what they call in German "schwaenzen" (cutting lessons). With regard to the difference of psychological ability to perform work at the same age, I have mentioned that I do not know of much material from exact investigation. Certainly it is to be supposed that there will be a notable difference. As to physical statistics, those of the late Key, in Stockholm, show clearly that girls of 11 years are in weight and height below boys of the same age, but they surpass boys at the age of 16. We get similar results from the investigations of Smedley as to vital capacity and of Porter as to chest girth. Ebbinghaus has found experimentally that in certain directions of psychical work boys of 11 years are above girls of the same age, whilst the girls of 16 years surpass the boys of that age. It is clear that such facts have an important bearing on the question of co-education.

As to work done in the single subjects of instruction in high school courses, we know almost nothing definite; at least I do not know of any exact investigation upon that question. It is true, also, that difficulties sometimes arise if one wishes to make investigations in school; more than one example could be cited of persons willing to make experiments who were not allowed to do so because headmasters or school-officers feared that too much of the time for instruction would be lost in that way.

Regarding the total result of school work I know of no positive information, except that coming from the co-educational high schools of Finland. There the successes in school have been put together in various ways. The following data from the city of Helsingfors are in point. It takes 9 years for a pupil to go through the whole course of the high school, and the final examination must follow on leaving. The average marks of three series of pupils who had been through the whole 9 years' course of a co-educational school were taken out of the school certificates. The higher figure signifies a better result. The average mark was, for the boys, 7.10; for girls, 7.89.

In order to see whether the results in the co-educational schools were similar to those found in schools where boys and girls are educated separately, comparisons with averages of other Helsingfors high schools were made, and the following results were obtained:

4 unmixed boys' schools, ...	7.29
The boys' series of a co-educational school,	7.30
The girls there, ...	7.68

This investigation shows always the better result with girls. That would signify in every case praise for the girls, even if greater application only had been the cause.

When we look at all this, there is no reason to be adduced against co-education in the high school; the only question is the difference we have referred to in the ability of the two sexes at the same age. We shall speak about that difficulty when we consider the practical solution of the problem. The lower standard of pyschical variability in girls is no hindrance on the European continent, because for a great many years in European high schools no attention has been paid to the existence of special aptitude for a special subject, and in our classical or modern high schools every subject had to be learned equally by every one, and even now pupils are not allowed to omit one subject from the curriculum. A change of ideas is going on now in Germany in so far that, *e. g.*, in Prussia pupils who do not know enough at the final examination in one subject, but are very strong in another subject, are passed so that they may go on to the university and get degrees.

We see that according to European views there is no serious objection to be found against co-education in high schools. Now let us look at the physical side.

The completion of growth in boys requires a longer time than in girls. The difference between the physical condition of boys and girls shows itself very distinctly in their ailments, probably also in their mortality; as to the latter I quote only the statements of Hartwell of Boston: while the lowest mortality among boys is during the 13th, 14th, and 15th years, among girls it is during the 12th and 13th years. With regard to morbidity we have data based upon very numerous observations coming from Denmark, Sweden and Norway. Investigations have been made, especially in Sweden, as to health, time of work, sleep, and so on. At that time no co-educational high school existed, but boys' public high schools and girls' private high schools. From the latter, certificates naturally had not the same value as those from the boys' schools, because in those days the girls who studied did not do so to get certificates to enable them to obtain positions like the boys. Mark well that in Europe certificates are a thing of the greatest importance in earning one's living, since without them public positions are impossible and others not at all easy to obtain. Now, the percentage of illness is as follows:

	Boys investigated	% sickly	Girls investigated	% sickly
Denmark, .	16,789	29.	11,336	41.
Sweden, .	11,210	34.4	3,072	61.7
Norway, .	830	21.9	500	36.7

The material is not quite the same. In the Denmark statistics are included boys of boarding schools and public high schools and girls of private high schools, in Sweden and Norway public high schools for boys and private high schools for girls. Further, the investigations in the different countries have not been made at the same season of the year; but in all these statistics no case of acute illness is taken into account, but only impairment of health of different kinds and various chronic troubles.

A small comparative investigation has also been made in Halle, Germany, of boys and girls from 7 to 14 years old only; there also the percentage of sickly girls is higher than that of boys, and reaches 50 %.

Sustained severe work for children under the conditions of school life leads very easily to repeated nose bleeding and to headache, which are, alas, not uncommon during school years. The special causes are different, *e. g.*, that the flow of blood to the brain under those special circumstances is increased, the return flow is rendered more difficult from various reasons. In a girl high school at Hamburg 50% of the girls suffered from habitual headache, 16% from repeated nose bleeding; investigations concerning the home life gave the result that only in one-tenth of the cases influences such as exciting drinks or hereditary tendencies were to be regarded as simultaneous causes. Statistics naturally speak with greater authority if both sexes can be compared.

In Sweden the following results have been obtained:

Number investigated	Habitual headache %	Chlorosis %
11,210 boys	13.5	12.7
3,219 girls	36.5	35.5

When one compares these results with the average daily time for obligatory work one finds that the latter has been lower in girls' high schools in every year than in the boys' schools for the same age. As I mentioned before the Swedish statistics compare boys' public high schools on one hand, and girls' private high schools for the upper classes on the other, for which the work registered is not the same. For results in co-educational high schools we must go again to Finland. The reports of one of the high schools, the Nya Svenska samskola give data as to the causes of non-attendance for the years 1896-1898. The causes for school days missed are as follows:

	Habitual headache %		General weakness %	
	Boys	Girls	Boys	Girls
1897	14.2	31.2	0.6	2.6
1897	13.3	20.6	0.8	6.3
1898	10.1	24.1	1.6	6.1

Thus the girls show much less regular attendance, owing to repeated headache and general weakness, than the boys.

In the small Danish city Naestved there exists a co-educational school, where the non-attendance days of boys and girls were compared. Out of the 250 school days of the year each boy missed on an average 5.8, each girl 10.2 school days.

Gymnastics, by which we mean drill, is obligatory for both sexes in Finland co-educational schools; exemption can only be obtained by a certificate from a physician.

Now Palmberg found in 1890 in the Helsingfors co-education schools that the percentage of those exempt from gymnastics was as follows:

Out of 1,275 boys 3.06% were exempt, of those 49% were exempt on account of weakness.

Out of 973 girls 11.63% were exempt, of those 65% were exempt on account of weakness.

Similar results have been noted by Lindholm, who in 1900, made his investigation not in Helsingfors but in eight small cities in Finland; in the total number of those towns the percentage was as follows:

Out of 1,921 boys 8.7% exempt, of those 25% were exempt on account of anæmia and general weakness.

Out of 1,427 girls 14.0% exempt, of those 60% were exempt on account of anæmia and general weakness.

There also a higher percentage of girls were exempt, among the causes conditions of weakness being more prevalent. Also the mortality from tuberculosis is higher in Finland among girls than among boys.

Let us now compare the differences at different ages. I can use the Swedish statistics for that purpose, and I select from the Swedish boys' high schools the classical schools only, because they show the greatest morbidity, and thus the difference from the girls' private high schools becomes as slight as possible.

Age,	11	12	13	14	15	16	17	18	19
% ill, boys, classical school,	34.4	37.6	38.0	37.4	36.6	34.7	38.6	40.5	36.9
% ill, girls, high school,	55.7	59.7	64.8	64.4	63.1	63.9	62.5	(68.6	60.3)

Though I chose from among the boys' schools the classical school with its high percentage of illness, the difference between the boys and girls is striking. In every year the percentage of sickly girls is much higher than that of boys. In both sexes the percentage of sickly pupils increases up to 13. The great relative difference is characterized by the peculiarity that with the boys, at the moment when the vigorous increase of growth arises, which signifies the beginning of puberty, the percentage of sickly boys decreases; whereas with the girls, with whom that development begins at an earlier age, the high rate of morbidity continues for a remarkably long time during that period. In Sweden the mortality of girls from 12 to 16 years old was also found to be higher than that of boys of that age. A further proof as to age and bodily resistance is the following from co-educational schools. In 1890-91 Pipping weighed the boys and girls from 8 to 20 years of age in four Helsingfors high schools in the different terms of the scholastic year. The results obtained in two co-educational high schools with a total of 507 boys and 636 girls show, as far as development can be determined by increase of weight, that the increase during the course of the year is similar for boys and girls up to 11-12 years. Later, during the years of 13-14, with the development of puberty, this increase during the school year becomes remarkably different in the two sexes; with every additional year, it becomes more apparent that the increase in weight amongst the girls takes place principally during the holidays, especially the long summer holidays. From the 16th year upward there would seem to be no increase of weight among them at all during the term, but even diminution was noticed; other results have been obtained with the boys, who showed a more equal increase during the school terms themselves. Those observations show clearly that in such climates with the development of puberty the organism of girls gives evidence of a physical weakness and a greater sensitiveness to hard work.

I shall not weary you with any more dry statistics. From whatever point of view one looks at the matter so far as reliable material exists, a critical study of European statistics based on physical aspects, shows unfavorable conditions for the girls, with regard to the power of resistance to noxious influences.

It would seem especially that the augmentation of the percentage of girls with characteristic kinds of ill health during the age of the development of puberty merits attention in every way. It is also a well known fact that the time of that change is not only accompanied by physical troubles but also often by a psychical depression and retarded interest and fitness for mental work; and these facts must strike us all the more because well developed, healthy girls, under favorable circumstances, pass through that process of development, which is a *physiological* one, without difficulty, whereas the above named troubles will arise under unfavorable conditions with girls who are not completely healthy, and yet whose percentage is a high one as statistics have shown for the age previous to puberty. The facts referred to are facts with which schools as institutions for the masses must reckon, and the causal connection of the above mentioned troubles with the injurious influences of school life such as continual sitting in bad conditions as to air and light, together with difficult and trying home work is obvious.

With the girls the development of puberty encroaches seriously upon the general development in a different manner from that which it does with the boys; the normal progress of that development is of importance for the whole future life. The first marked sign of the sexual life is only the terminal link of a long chain of natural processes, but from that moment a new great difference of the sexes shows itself by the regular oscillation in the physical and psychical life of the woman.

There cannot be any doubt that the development of puberty in girls represents a process in which hygienic matters have a still higher importance than with boys; therefore in the school régime also, the observance of the rules of school hygiene for the girls should play an important part. It is true, however, that we cannot, up to the present time, find that the schools have taken such special notice of the progress of development of the boys.

Culture has in the last half century conduced, at any rate in the central parts of the European continent, to make the burden for youth in the higher public education continually heavier; however, it is true that a perception that something may be wrong is gradually gaining ground here and there, but even in the new kind of schools erected for girls it is not apparent that sufficient attention is paid to hygiene.

When we refer to all the material at our disposal we see that with regard to the mental gifts and abilities of girls there are hardly any serious reasons against co-education in high schools, but that their physical state and development speaks decidedly against loading them with such a burden as the boys have to bear now in our European high schools.

Certainly we know that there have been already several women with exceptionally high scientific gifts, and that a remarkable number of girls have gained the knowledge demanded by the high school curriculum under the greatest outward difficulties: but that is no proof that for a number of girls analogous in percentage to the number of boys taking the high school curriculum such studies would be advisable. Let us look at the school history of co-education in Finland. The total number of female university students in Helsingfors was 19 up to the year 1890; in the year 1890-91, that is to say, when the co-educational high schools first held examinations for those leaving, the number mounted up to 150. Now there are 2,500 students in Helsingfors University, out of them 500 lady students, that is to say 20%. What were the female university students going to be? From the official reports of the president a great difference is to be seen between the female students before 1890 and the later ones; the few out of those early days, who were obliged to make headway, were distinguished by a high degree of intelligence and energy; not less than 13 out of the 19, that is to say 68%, finished a complete university course of study with examination; out of the ladies there are at present only 12% who take any examination. Similar results were noted also with regard to the numbers of female students at the Geneva and Zürich universities in Switzerland. There also the results of the final examination went down with the increase of the number of pupils. In Helsingfors before 1890 100% got Laudatur, the best mark; 1890-91 55% got Laudatur, 7% Approbatur; 1899-00 15% got Laudatur, 41% Approbatur.

Another question in connection with co-education is the morality question; it only touches hygiene, but it is a critical one. In northern Europe, especially in Finland, where, as we have seen, the system has already been in practice for some years, it was naturally remarked that other than comradelike inclinations sometimes arose, but nothing objectionable or improper was noticed. It has been observed in Denmark that the boys in co-educational high schools prefer to choose the lady of their heart from a girls' school rather than from a co-educational one. I do not intend to speak here about adolescent love, but refer you on this point to the chapter so excellently treated in President Hall's admirable book on Adolescence. I shall only remark that in these northern countries sensuality probably may not be so much developed as in southern ones. During the last years in different smaller cities of Germany and Austria co-education has also been established in the high schools, and we may hope to get by this means knowledge of the results of this system in other European climates also in the course of time. I think that in every case European continental high schools are in many respects differently constituted from American ones.

As everybody knows some other possible psychical influence, which has to do with special secondary sexual characteristics, may be expected to work favorably in its effects with co-education; the girls may learn from the boys to criticise their subjects of study and become influenced by the specialistic tendencies of the boys, they may learn to be more independent and capable of deciding for themselves and get rid of superfluous shyness; on the other hand, the greater refinement of the girls may have a propitious influence on the boys in causing them to cultivate more moderation and gentleness. It may be that co-education will also have a good influence on the views of parents; up till now, girls have not been given enough freedom of mind and body in Europe in consequence of traditional customs.

In every case we must always come back to the fact that the power of resistance is weaker in girls, and their course of development different from boys; there cannot be any doubt that therein lies an important argument against co-education based on the present curriculum in our European boys' high schools. There should be a tendency to give such a character to the curriculum that release from hard work could be obtained at certain times without necessitating a dropping behind in the studies. That is a question difficult of solution.

Notwithstanding all these difficulties, I suppose we shall also have before long a co-educational system in the high schools in central Europe to a certain extent. It is a characteristic feature of higher female education in Europe that first of all private schools for girls have been founded, that money was obtained for such schools from private people, and these schools were expensive ones and accessible only to the upper classes of society. They had a certain freedom as to their curriculum. The certificates naturally had no public, no official value for gaining positions or leading to university studies. Afterwards official curriculums arose, and certificates of the schools thus gained a certain official value; the old private schools now began to adapt their curriculums also to the official ones, and new schools arose, again founded by parents, that is to say, undertakings with no financial gain as an object. In the different states of the European continent nothing or relatively small sums only have been contributed from the public funds up till now towards the expenditure on such girls' high schools, though the state reserves to itself the right of approving the curriculum and superintending the education; in return the state gives certain rights such as admission to the universities. Therefore school fees must naturally continue to be high ones. There are exceptions, as in democratic Switzerland, where girls' high schools also are accessible without fees.

Out of the girls attending high schools in Central Europe only a certain number may wish to reach a higher level of mental development for its own sake; the greater proportion of them will probably have to earn their living with what they have learned. The tendency towards the higher education of girls will probably increase more and more for both reasons, and so a good practical solution of the co-education question is not the least important part of the girls' high school question on the European continent.

Now in large cities separate high schools can be run by private enterprise, but if the girls are allowed to attend boys' high schools (which are, with very rare exceptions, day schools and founded by public funds), these girls should pay only relatively low fees, and if they come from poor families, then no fees at all, just as it is in the case of the boys. Further, in small cities a public high school for boys often exists with only a small number of pupils, so that there would thus be plenty of room for the girls wanting higher education, but it is practically impossible to erect a high school in such small places for the limited number of girls in question. It is also a matter of fact that in such small cities, where almost every one knows each other personally, and meets here and there, and in this way a sort of involuntary public control of youth exists, there cannot be so much moral danger from co-education in a high school.

I remarked that with us it is a question of day schools only. As to practical arrangements, it would be first of all sufficient to have separate cloak-rooms and so on for the girls. Further, separate drill, as girls are not so strong in muscle as boys and have less lung capacity; probably, too, they themselves would not care to play football.

The real difficulty lies in the curriculum. I must remark that in our classical high school, which is called "Gymnasium," as also in the modern side of the school, which is called "Realschule," and in other high schools, we have no optional system, and I don't suppose we shall attain anything of that kind in our high schools at present; only certain subjects are optional outside the course of the already severe normal curriculum as, *e. g.*, singing or stenography, or in classical schools one modern language, or in the modern schools modelling, and so on. I would remark that all these schools begin their work with children of ten or eleven years of age.

The true policy would be that every one should have the opportunity of learning as much as he or she is able to do, without injury to health. As far as we are allowed to judge from all that we know about health and development, it would be against hygienic principles to oblige girls to learn in co-educational high schools everything that boys are obliged to learn in these days. But one could arrange things so that just in those subjects to which the greatest number of hours are devoted each week in school, and for which, therefore, most preparation is required in the home work, the curriculum should be made lighter for girls and adapted in respect to quality and quantity of work, so that the resistance of the sex and its variations in the different stages of development be taken into consideration. Thus, *e. g.*, it would be sufficient in our classical high schools to diminish the Latin and Greek in the curriculum for girls. By this means girls would get rid of a number of school hours and home studies, and could use this extra free time for walks, open air games, skating, and so on. After they had passed through the whole school with the boys they could take the final examination with them also, but at a lower scale for certain subjects. A number of girls would be content with these studies either with or without the reduced final examination; for it may be that they are seeking a higher education only for its own sake, or they are not sufficiently gifted for such an examination, or they do not want to go to a university to get a degree. It is indispensable for those who wish to get a university degree to have passed a complete examination on leaving a high school. Now it could be arranged for those girls who have finished the co-educational high school and wish to get degrees, to study a year or a year and a half longer at a high school, where they would learn what is needful for passing the final examination, at a riper age and with more resistance also because they have preserved a better state of health. In the European continent there would be no injustice in that system because the boys lose more than one year by being obliged to spend that amount of time in military service, or if they are physically unfit, to pay a tax for several years for exemption from military service.

It is possible that such a solution may seem strange from an American point of view; but in old Europe for every public position, even for a very inferior one, and for the greater number of private positions, certificates are the first requisite and are invariably asked for.

Everybody knows that in the United States co-education in higher schools not only is very general already, especially in certain parts of the Union, but is making further progress, as one sees from the reports of the Commissioner of Education.

In pedagogical matters the scientific experimental method should be much more used and the results studied, especially in Europe where all education is regulated generally in a very decided way by public administration. Trials have been made already with co-education in Baden and Wurttemberg. In the Grandduchy of Baden the Ministry declared that, as the schools have been founded as boys' schools, the number of girls admitted should be limited with no regard to the special features of the education of the female sex. The ministry states that the experience with the girls is a good one. In Wurttemberg, where the boys' high schools are mostly the property of its cities, a number of them have already allowed girls to enter; every city which intends to make the boys' schools acceptable to girls also is obliged to make a special request to the Ministry for such permission. Also in Saxony since Easter 1908 co-education in the present high schools for boys has been started in a cautious way; but in every single case parents must make a special application to the minister of public education.

The resources of nature are quite inexhaustible in all that is wanted for the healthy existence of mankind. We cannot expect that care for the welfare of every individual should arise from love for one's neighbor; but hygiene shows that unhealthy conditions in one class of people may have dangerous consequences also for others, even if these live in the most favorable circumstances. So from reasons of self-interest alone progress may be made for the good of all. Practically man as lawgiver has not taken enough care of women. In a low state of culture he often treats her as a slave, whether she is forced to perform the hardest work or to live the confined life which is the lot of Mohammedan women, and even in highly cultured European states one hears a great deal spoken about the lower resistability of woman; but it is admitted at the same time that she does the hardest muscular work day and night in earning her living, and that women in public positions are paid at a lower rate than men and not allowed to attain the same positions, though they do the same work. I feel sure that in the centre of Europe the cry for the higher public education for girls and consequently for co-education, arose first of all because families who lived in good or tolerable circumstances, through the wages of the father, looked in despair on the future of the daughters. Ensure to all poor girls the means of earning their own living and the tendency towards higher education will have another character.

We cannot, however, deal with Bellamy in practice. There is no doubt that co-education in high schools is a difficult question in various ways; from the hygienic point of view, because resistability as a whole and the variations especially are different in boys and girls, and the states of morbidity acquired by girls at the adolescent age so often continue in the future life of the woman and consequently may influence future generations also.

Co-education should be considered everywhere as an important public matter, and the higher education of the female sex should have regard not only to advantageous knowledge but also to physical soundness and improvement.

THE MAIN PROBLEMS OF SCHOOLROOM SANITATION AND SCHOOL WORK

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The schoolroom deserves special consideration, because the pupil is obliged to be in it during the greater part of his daily work in school, and to do his lessons there under conditions likely to become objectionable from a hygienic point of view.

Light, air and correct positions are the main points to be considered, and for the reasons just mentioned the schoolroom merits the first attention when planning the house.

As to the dimension of the room, the cubic air space is the more favorable the greater the room in relation to the number of pupils. How many pupils are to be instructed together in one room is, alas, a financial question. Practically, one could put a greater number in one room if the latter were relatively big enough, but it must be borne in mind that there is a difference between universities, *e. g.*, and schools in a stricter sense of the word.

With respect to pedagogy, each pupil's share in the teacher —if one may say so—becomes less, the greater the number of pupils in the schoolroom, so that the enormous advantage of being taught with others instead of being taught alone has also a limit in a pedagogical sense. Further the pupil's range of ear and eye is limited, and the question is important with regard to the hygiene of the teacher, whose nerve-destroying work increases with the number of pupils and the strain upon whose voice varies according to the dimensions of the room. Nervousness and diseases of pharynx and larynx contribute in a prominent degree to the statistics of the ill-health of teachers.

Taking all these points into consideration, it would be better for the schoolroom to be not more than about 30 feet in length. The breadth of the schoolroom should be determined from a pedagogical-hygienic point of view; because rooms too great in breadth render it more difficult to see all the scholars at the same time; and of special importance is the breadth with regard to light.

The aspect of the schoolroom windows is an important matter, a southern exposure commanding much better light than a northern one, and a temporary bathing of the schoolroom in sunshine being of value for the health in different ways, *e. g.*, in consequence of the bacteriacidal influence of sunlight. As far as circumstances allow choice of aspect, it will be also of importance when making the decision to consider whether the climate is warm or cold, whether pupils are robust and well nourished or frequently feeble and anæmic, and so on.

Much time has been bestowed on experiments with persons of normal eyesight, who read printed matter quickly, to find out the minimum amount of light needful for a school-desk. We now have photometers, by which we are enabled to measure the intensity of the light which is reflected from the desk itself, while formerly one could only measure the intensity of the light of a self-lighting object. Further, let us imagine that the greatest circle of a globe is divided into 360° and over every such degree a square constructed, then we have what is called "square-degree" (Qg.). The whole celestial globe has more than 41,000 Qg. Now instruments have been invented by which it is possible to measure how many Qg. send light to the pupil's desk in question; since the angle of the ray is also of importance, one must reduce the Qg. to a horizontal plane and get by this means the reduced area-angle, the "Raumwinkel." R. W. Pleier, of Karlsbad, Austria, has constructed a practical instrument by which one can measure the area-angle without being obliged to reduce it. A photograph is made simultaneously with the reduced square degrees.

Now it is possible to find out in a scientific way, by means of such instruments the exact amount of light which falls on a school desk; but if there is not light enough then the scientific statement of the fact will in almost every case be of no practical consequence, because it is too difficult and too expensive to make alterations in a house already built. Therefore it is of importance that the right amount of daylight should be guaranteed when the house is first being planned; for that purpose more or less complicated calculations have been proposed, so that 25 meter-candles (10 in red light) or the 50 reduced square degrees or area-angles may be secured. Such calculations, however, will only be made in exceptionally rare cases, and therefore I should rather prefer to have resource to a simple method which can be used by every private architect, even in the country. Let us imagine a vertical section of the future schoolhouse so made that the section is perpendicular to the front of the schoolroom and the street, and the sketch of the house which is or can be erected opposite to the schoolhouse. Now we mark in the schoolroom the top of the desk which is furthest away from the window; we draw from that place one stroke which touches the upper edge of the schoolroom window which is opposite to the desk, and a second stroke which touches the top of the roof of the building opposite to the schoolhouse. By that means we can see immediately whether any light at all from the sky falls directly on to the desk in the worst position on the floor in question; if direct light reaches that desk, the room will do. Insufficiently lighted rooms will be found chiefly in the lowest stories; to avoid this schoolhouses must be built at a greater distance from the opposite house, or the lowest floor must be used for other school purposes than schoolrooms, or it could be let. If possible, it is better for the schoolroom not to face the street, but a big courtyard or a garden, where there is less noise and dust, so that windows in summer time can remain open during school hours. The proposed plan is not strictly scientific, but it must be observed that up till now the results obtained from scientific investigation as to the necessary amount of light have not always been found to be incontestable.

In every case the strongest light must come from the left side, otherwise shadows from parts of the body fall on to the paper when the pupils are writing. Intensity of light decreases rapidly with the distance of the desk from the window, and we also see that the intensity of light depends on the height of the upper line of the window, and therefore also on the height of the room itself, which it would be better not to make less than 13 feet (4 m.), if the room is 19 feet (6 m.) broad.

From this it also follows that windows should reach up to the ceiling and that their upper part should not be shaded by curtains when they are not necessary. Architects do not always comply with the request that windows in schoolrooms should be separated only by very small mullions and the top of the window should be horizontal; they sometimes prefer Gothic windows, and the like, but they make a great mistake. We like a table nicely decorated for dinner, but the main thing is to have good and sufficient meat and drink—"panem et circenses," not *vice versa*. The right problem of art in those things made for practical use can only be how to embellish them after the needs are satisfied. And experience shows that an architect can quite well make a schoolhouse look nice, even though he respects the requirements of hygiene.

It is a pity that in schools, artificial lighting also must often be used. Though progress in artificial light has been enormous during the last 25 years, in many schools over-heating and the production of noxious gases are still only too common, and another and very fertile cause of injury is to be found in the shadows caused by artificial light. A schoolroom may be excellently lighted so long as there are no pupils in it, but when pupils sit down, a number of them may have to work in deep shadows from head or body. One may then find by measuring that perhaps only six per cent. of the light which should fall on the desk is actually at the disposal of the pupil who is sitting there. To avoid this evil, Jaspar, of Paris, in 1881, invented a device for artificial diffused light, without shadows, the light being directed first of all by shades to the white ceiling and white upper parts of the walls, and being given back from innumerable points of reflection as a diffused light. The light may be quite excellent when the lamps are first installed, that is to say, sufficiently strong, but in cities with much dust and soot the ceiling and the upper side of the shades become dirty very quickly and get covered with dust. As some trouble is involved in climbing up to see whether there is dust on the shades, servants do not bother themselves about it, and the headmaster will certainly not mount a ladder to see if the servants have done their duty. It is now preferable with electric light to fix the lights directly on the ceiling, so that the light is as far away as possible, and therefore the shadows are less deep.

When the lighting is unfavorable bad positions are inevitable, and thus respiration, circulation, digestion, and eyesight become impaired.

As there cannot be too much diffused light in a schoolroom so we cannot change the air too much, but annoyance from draughts must be avoided. If we compare the amount of air space in private rooms for one person with the amount in a schoolroom, we see immediately how unfavorable the conditions are in the latter, even when not crowded. To improve the air one could make the cubic space per pupil greater by increasing the height of the room; the increased height would not make speaking and hearing more difficult, but such rooms are not so easy to heat. It has been generally supposed that the products of the respiration and perspiration contain poisons also, and much effort has been made to discover exactly what those poisons are; but it has not been possible to ascertain their chemical quality, therefore much less their quantity. But it would be probably not quite right to conclude from this fact that such substances cannot exist, and do not work injury. We have known, *e. g.*, that the springs of Gastein in Europe have a wonderful sanitary power, but chemistry could find no special substances to explain the fact; since radio-activity has been discovered it has also been found that the Gastein water is radio-active—it may be that therein lies the reason of its sanitary power.

The father of hygiene in Europe, Pettenkoffer, supposed that those indefinable noxious substances, produced by respiration and perspiration, increase in proportion to the carbonic acid produced by men, and therefore the quantity of carbonic acid in the air would be a means of measuring the quality of the air. So much is sure, that the carbonic acid produced solely by the presence of people in a room is a means of judging the quality of the air, because the air exhaled contains a hundred times more carbonic acid than the natural air inhaled, and, with the increase of carbonic acid in the air breathed into our lungs, that air approaches more and more to the quality of the air exhaled, so that diffusion in the lungs must become less and less. But Pettenkoffer considered one pro mille of carbonic acid as the maximum which should be allowed in the air of a schoolroom, and he came to that conclusion because he found that then the air smelt foul in consequence of the unknown substances produced by human beings at the same time as the carbonic acid. Now that conclusion is false, because the smell of air depends not only on respiration and perspiration but in a great degree on the cleanliness of the bodies and linen of the people themselves. There seems to be some degree of mystery in the air question. But very interesting is the fact that Weichardt has found the poisonous "Kenotoxin" in the exhaled air, also.

Every care should be taken to keep the air of the schoolroom as free from dust as possible; in the first place not to introduce dust and secondly not to produce it in the schoolroom.

There cannot be any question that we must do our best to ventilate the schoolroom, even if we cannot prove sufficiently in a scientific manner the existence of self-poisons in the air.

In every case it is necessary that the windows of a schoolroom should be made to open wide and without any difficulty, so that the pupils themselves can open them. I do not as yet know of an ideal schoolroom window for cold climates. If the breaks between lessons are not too short, let us say at least of 12 minutes' duration, one can use the windows for abundant and quick ventilation even in winter time in temperate climates. The caloric capacity of air is very low, but the walls and the furniture contain much warmth and lose only a trifle of it if, *e. g.*, on a cold winter day, all the windows are opened for a minute or two, and the greater the difference is between the temperature of the schoolroom and the air outside, so much the more quickly is the air in the room changed and renewed; and the remaining time of the recess will be sufficient to make the fresh air warm, which has come into the room.

The use of windows for changing the air is of a certain educational value in the country; we have a facetious proverb in Europe to the effect that the air in the country is good because the peasant never opens the windows of his dwelling.

The usual method of ventilation is what is called in English the "natural system;" the air from outside is conveyed through a channel to a space between the stove and its mantle, and an opening in the wall of the schoolroom allows the foul air to enter a flue which conveys it out of the house. The difference of weight and therefore pressure of the warm air inside and the cold air outside makes air move like liquids of different weight in communicating tubes. The system is of value; but it is not sufficient because its working depends on the difference of the temperature of the air inside and outside, and so for the schoolroom the ventilating value of the system depends on the greater or less heating of the room, and the effect decreasing with diminished heating, though the necessity of ventilation is always the same. It would be a help to heat the foul-air flue when the schoolroom itself is not warmed. Still less reliable is the apparatus for ventilation by which the pressure of wind can be utilized; since this pressure is a continually fluctuating one. The best method is the plenum system, but it cannot be introduced in every country schoolhouse.

Much progress has been made in recent years in methods of heating; a very easy regulation of temperature can now be obtained in many schoolrooms by central heating. But we must not forget that man is a warmth-producing body and he must lose the surplus by radiation, vaporization and conduction of heat; now in the schoolroom, in the neighborhood of one such warm body are other warm bodies, which must also lose their heat. Therefore, schoolroom air must not be too warm or too moist as we shall see from the following experiments. In Flügge's laboratory experiments have been made with a man enclosed in a small glass room under differing conditions of warmth and moisture and percentage of carbonic acid in the air. Similar experiments have also been made with pupils in a schoolroom. If the carbonic acid increased up to 10 to 16 pro mille, but the temperature was below, sometimes far below 68° F, and the relative moisture was not higher than about 47-72 per cent., the person felt quite well, although the chemical composition of the air was in an appalling condition and the experiment lasted from three to four hours, but if the temperature was raised to between 68 and 86° F., and the relative humidity was 47-92%, then symptoms of illness such as giddiness and so on arose, even after 10 to 13 minutes, though the carbonic acid did not reach more than 13 pro mille. There cannot be any doubt that the retention of warmth in the bodies of pupils in the schoolroom must be avoided, but I do not think we ought to conclude from these experiments that pure air in schoolrooms is superfluous.

For a long time the greatest problem of school hygiene has been the school desk, and it is so still. It may be somewhat audacious to speak in the United States about this matter, since Barnard in his article on school-architecture in the Connecticut Common School Journal, as far back as 1838, was the first to speak sanely on the question. Since that time American and European authors have occupied themselves with the problem as, *e. g.*, Hartwell, Porter, and Scudder in the United States. The first essential of a good school desk is that it should permit of healthy positions. While certainly one can sit in malposition at a good desk, in an objectionable one pupils are forced to sit badly. It is necessary that the desk should have the right dimensions, and that it should give some freedom of movement also. Otherwise the most important bodily functions, such as respiration, circulation and digestion, are obstructed, and pathological curvatures of the spine are produced. Purely pedagogical and economical questions also are of importance. Single desks, such as are in use in the United States, and also in England and Sweden, are preferable, because they diminish dangers of infection and pedagogical difficulties.

I had already occupied myself with school hygiene for some time before I thought that the desk I used myself for many hours a day, might not be the best from the hygienic standpoint. In fact, the seat was too high and my feet did not quite reach the floor; therefore I cut the legs shorter. Now the desk itself was too high and I cut its legs shorter so that, when my arm was hanging vertically, the elbow was just the same height as the desk. Now, as I could not get my own legs beneath the desk, I took out the middle drawer and cut off a piece of the drawer, and now I was able to get my seat so far under the desk when writing that the distance from the edge of the desk to the back of the seat could be made almost as great as the sagittal diameter of my breast. Now my work was quite a different matter, much more healthy and agreeable, too. There may be ladies and gentlemen in the audience who do not sit hygienically at their own desks, though they are interested in the hygiene of their pupils. "Charity begins at home," and therefore it is well to begin reform on ourselves first.

We can place our seat further back when reading, *e. g.*, and the pupils need not always sit as near the desk as is correct for writing. Therefore school desks should be made with movable parts, and they must also be adapted as far as possible to the individual height of each pupil.

The conditions I have sketched in a cursory way are those necessary for every school; but the movable desks can be omitted in country schools; for it is important for village schools to get desks cheap, and the total number of daily school lessons and of school years is lower than in high schools, also country children are more occupied in the open air and do more bodily work in general, so that their muscles are more strongly developed.

There are two means of getting desks suitable from the hygienic standpoint. One can choose desks of different sizes or make the desks adjustable to the varying size of the pupils.

It is a pitiful fact that in many cases no trouble is taken over this matter except that the carpenter receives the order to make the desks, and nobody cares whether the sizes he furnishes are suitable for the pupils. A good model may be chosen, but no one bothers his head about the details which are equally important. I have made an investigation concerning the desks in every Austrian high school, numbering about 300 with nearly 100,000 seats, and the results have been pitiful; for it is a sad fact that in five-sixths of all the high schools the whole work of hygienists and technical experts has been done in vain. I feel sure that in many European states the result would be no better in this respect.

As the unadjustable desks are made so that every special size is planned for a stature within certain limits, I proposed many years ago that the manufacturer should make a lathe, marked not by inches and centimeters, but only by stripes signifying the height-limits for pupils, who should be seated in the corresponding sizes of desks. In this way can be found out in a few minutes how many desks of each size are required for a given schoolroom. As the size of scholars in a classroom varies every year and the pupils grow taller during the year, it would be a good plan to measure the pupils half-yearly during several years before supplying the new desks and to buy also an extra number of desks for exchange and put those not wanted at present in a storeroom in the schoolhouse. Further, as the size of pupils sometimes varies considerably within small geographical distances according to race and standard of life, it is better to make such measurements in every case, before a school is to be furnished with desks. In villages where conditions are of the simplest and great outlay is impossible, nothing can be done, except to buy what is necessary for the average requirements of the pupils after the measurements referred to above have been taken. Place the desks so that the lowest are next to the teacher's platform, and the higher desks in graduated rows behind; to seat the pupils, first arrange them standing according to their respective height and then place them in the graduated rows of seats. To be sure, that is not the best way of seating, but the best way under such circumstances.

It is difficult for a country carpenter to make suitable desks in different sizes. A teacher, Walter, of Dornbirn, Vorarlberg in Austria, has found a practical solution of the difficulty. He sells a drawing in which all the different sizes of a simple double-seated desk are shown according to scale, in such a manner that every simple country carpenter can make the desks correctly with the help of this drawing. The drawing costs about two dollars (10 crowns Austrian value).

All desks not adjustable have the disadvantage also that they must leave out of consideration relative individual differences; there are pupils thick and thin in body, those with relatively long and short legs, and so on. In every case adjustable desks are the best, if one can make sure that the adjustments are made, but they are naturally expensive. It is more economical to have only a certain percentage of adjustable desks in the schoolroom, as, *e. g.*, has been ordered in Brooklyn, where 33 1-3% of adjustable desks are ordered for a schoolroom. So far as I know only the United States and Great Britain up to the present time, are so far advanced that adjustable desks are in use in a considerable number of schools.

It is also of hygienic value that desks should not make it a difficult matter for the floor to be thoroughly cleaned. The different arrangements possible for that purpose are first that the desks should only touch the floor at certain points, a means used with simple desks in France first of all I think, or, secondly, that they should be reversible, this kind being first used in Lausanne in 1887, or, thirdly, that they could be moved on castors, so that whole rows of double desks can be easily removed in this way; this kind was first introduced in Europe by Zollinger in Zürich, in 1900, and is the most practical plan for such desks in my opinion.

The most objectionable occupation at the school-desk is writing. Unfortunately, when we write at the desk we must always bend the head somewhat. It is also necessary to observe certain positions of the body, hands, and so on.

I shall not here enter into details, but so far as my experience goes, I consider that the training of children in such matters, when they begin to learn to write in school, is generally too much neglected, because it would naturally cost time and trouble, and because it is a complicated matter for children to learn to write in a correct way; but the labor is well worth the trouble it involves.

Writing should at first be constantly interrupted at short intervals, whenever it is seen that the children are fatigued.

Much has been written about the question as to whether upright or slanting writing is preferable in school. The question is very difficult to solve in a scientific way, because different attitudes and movements of the eyes, the head, the fingers, the hand, the upper part of the body, and the pelvis must be taken into consideration; and because it is a question not only of the strokes with the pen but also of the continuation of the lines of writing, and because the manner of holding the pen, the quality of the desk, the varying bodily strength, and the previous training in writing complicate investigation.

We will imagine that the exercise-book is lying on the desk straight in front of the body, so that the lines in it are parallel to the edge of the desk; if I now make a down stroke I move the pen towards the bisecting line of my body; the down stroke is perpendicular to the line in the exercise book. That is the so-called upright writing.

Now suppose I lay the exercise book again in front of my body, but this time aslant so that the lines slant upwards from left to right. If I now make a down stroke I again move my pen towards the bisecting line of my body; the stroke is slanting to the line. Now I have the slanting writing.

In both cases the exercise book is in front of the centre of the body, and we see that as to the formation of such a down stroke, eyes and hand have to perform just the same work whether the writing is upright or slanting. Then, if a different influence on the bearing of the body by the two methods of writing exists, it can only be sought the direction of the lines in the copy-book, that is to say in the continuation of writing.

It is to be seen from Schubert's observations and those of others that with slanting writing the head is much oftener turned to the left or inclined to the left than with upright writing. Now we will imagine that head and body may be held quite correctly, only the head is inclined somewhat downwards and the centres of the eyeballs may be joined by a line which we will call the base line. If I now put the exercise book before the centre of my body, as I did for upright writing, and I look at a certain point of a line in the copy-book then a plane is given by three points, the two ends of the base line and the point I am staring at; that is the "plane of direction." If we now imagine that the base line glides down in the plane of direction we see that line fall in the direction of the writing line. Now we place our exercise book in front of us, as for slanting writing, and look at a certain point of a line, *again* without turning the head or body or inclining them to one side.

Let us again imagine that the base line glides down in the plane of direction. We see now that the projection of the base line in the plane of direction crosses the writing line.

Now I will incline the head to the left, so that the right end of the base line is higher than the left. In that way I can give to the base line such a position in space that its projection in the plane of direction meets the writing line at the same slant. If instead of inclining the head to the left I *turn* it to the left, so that the right end of the base line comes forward, I can find out such a position of the base line in space that its projection in the plane of direction joins the slanting writing line anew.

We see that we reach the meeting point of the base line in upright writing without being obliged to turn or to incline the head sideways, and in slanting writing if the head is turned to the left or inclined to the left. Now observations on those pupils who write aslant show that the prevailing number have their head turned or inclined to the left, and the higher the class is, that is to say, the quicker the writing, so much more is that fact noticeable; from these facts we can conclude that there is a tendency on the part of the writer to give such a position to the base line, that its projection in the plane of direction becomes the same as the writing line; now if pupils incline or turn the head sideways it is a natural consequence that shoulders will follow suit; therefore upright writing would be the more desirable the quicker the writing becomes, because the influence of the slanting direction of the lines must then become greater. With the small abecedarians who write one letter after the other quite slowly, that influence cannot be a great one.

But the inclining of the head to the left can also be caused by another reason. If I sit in a correct position, but hold my pen too near the nib I cannot see what I am writing; therefore in order to see I incline the head to the left. For the abecedarians the manipulation of the pen is naturally less difficult if they hold the pen close to the nib, and therefore they often do so, and the origin of many bad positions can be traced to this cause, but very many are also due to the want of change of position, to fatigue, and to a lack of correct instruction at the commencement of learning to write, and to bad desks, as I said before.

What we have discussed seems to speak decidedly in favor of upright writing. Now writing is a unilateral occupation. If I rotate my forearm at the point where it touches the desk I describe a curve whose radius is given by the forearm and the hand on the desk; and if I rotate my hand at the point where it touches the table, I also describe a curve whose radius is shorter. Both those curves mount upwards from left to right, and the chord of that curve shows the direction of the slanting writing line. Thus I can write a good part of the line quickly without much trouble. If I employ upright writing, that is to say, having lines parallel to the edge of the desk, I can only write quite a short piece quickly, because I must shorten the hand *itself;* after having written that short piece I am obliged to move the hand and forearm further and further along. Therefore, for quick work slanting writing is preferable.

The historical development of writing is characteristic. From old pictures, from initials in illuminated manuscripts in which the writer is depicted, as well as from old documents, it is to be seen that writing was formerly upright; from the beginning of the 16th century the change from upright to slanting writing is to be found in manuscripts, the probable reason being that the need of writing more quickly has given the impetus in that direction.

Less critical than writing is reading, because pupils can hold the book in their hands and can also prop it against the edge of the desk, and the body can lean against the back of the chair; it is more difficult to use the back in writing. I once collected primers from different countries, and I found no other primers so beautifully gotten up as to print, etc., as those from the United States. Very valuable investigations concerning the hygiene of printed matter have also been made.

I remember the investigations of McKeen Cattell, and of Sanford, which together with those of Javal throw much light on the subject. I apologize for not quoting American literature more frequently in my lectures.[1] As to school books, the late Hermann Cohn made many experiments regarding the legibility of print, and arrived at certain definite minimum demands as to the thickness of the strokes of letters, their height, the distance of one from the next, the distance of successive lines one from another, and so on. He constructed a simple apparatus by the help of which one can quickly find out whether a book is printed properly according to the norms of hygiene. A square is cut in a piece of cardboard, the side of which is one centimeter long and two adjacent sides are divided into half millimeters. Not more than two printed lines should appear at the same time in the square, if it is placed over a printed page, not more than seven letters in one of those lines, and so on. The directions for use are printed on the cardboard itself.

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[1] Much literature on this and other subjects on School Hygiene may be found accurately quoted in the "Handbuch der Schulhygiene," by Burgerstein und Netolitzky (Jena, G. Fischer, 2d edition, 1902).

One might say that writing and reading and school-desks would be less harmful if young people had stronger muscles; for then bad positions in school or for school work at home would certainly be less injurious. But there cannot be any doubt that we must try to get the hygienic conditions of the schoolroom and work done in it as perfect as possible, not only in order to secure conditions conducive to health, but also to foster in children healthy habits and ideas, that later they may become public-spirited citizens, ready to help forward to the best of their ability all wise and broad-minded schemes for the furtherance of the hygienic education of the nation.

SOME REMARKS ON THE RELATIONS OF BODY AND MIND

By PROF. LEO BURGERSTEIN, Vienna, Austria

The disposition and development of body and mind cannot be regarded as independent of each other, but the views concerning the importance of the relations in question have not always been the same during the progress of the human race, and in particular the ideas concerning the importance of the body as a receptacle of what is called mind have changed with the course of time. The standpoint of the moralist is different from that of the man of science, though neither will deny that the closest relations exist between them. While in a by-gone period of culture a harmonious development of the bodily and mental gifts has been regarded as the ideal of education, in certain phases of the Middle Ages in Europe the body was considered as an unworthy receptacle of the mind and it was extolled as a virtue to suppress as far as possible all efforts for the highest possible physical development.

Theoretically such a view is spurned to-day in all civilized countries by almost every one, but practically we suffer even now in different ways from the sad consequences of the singular ideas of a time fortunately past, and as we may hope never to return. Even to-day in Old Europe it is only by slow degrees that we approach the goal of an ideal education adapted to modern life and different climatic conditions.

Everything we do is necessarily connected with transformation of organic material, and there is hardly another organ which requires for its activity such a quick change of matter as the human brain does. It is a fact known to everybody that soldiers toward the end of forced marches continue to march in a state of sleep, so that in consequence of exhaustion the work of the brain is almost *nil*, but notwithstanding, in that unconscious state the muscles continue to accomplish movements whose total value, if measured in kilogrammeters, would be shown to be a big one.

Fatigue cannot be avoided, it is a physiological phenomenon, physiological that is to say within certain limits, and even the baby to whom no work is intrusted becomes tired and finds relaxation, nay, more than that, growth in sleep and nourishment.

One regards fatigue to-day as a result of change of matter, as a consequence of chemical processes, of a consumption of organic matter to liberate energy, whereby products of decomposition like lactic, carbonic acids and so on, are formed. These or more probably other products of change of matter operate with paralyzing effect upon the further ability to work; which could perhaps be developed anew by the consumption of still more organic material. Weichardt has at last found a specific fatigue toxin, the kenotoxin, which, according to his statements, exists even in the air exhaled, and he was also able to obtain the retardin as antitoxin to the kenotoxin.

I shall not waste your time with trying to criticise the different methods of testing fatigue, whether it is a question of psychological methods like those of reckoning, memory, combination-work, and so on, or whether it is a question of physiological ones such as the ergographical test or that with dumb bells and foot exercises, or Gilbert's tapping tests on a telegraph key, or those of measuring the changes in the acuteness of the senses like seeing, hearing, tasting, of the times of reaction, and so on; neither shall I speak about the relative applicability of the different methods for experiments under school conditions; only permit me to remark that, setting aside that question and that of the value of all those methods, it will be very difficult to arrive at conclusions of a general validity for educational purposes, because not only are the subjects taught so varied, the types of scholars so dissimilar, but also the teachers, preceding work, influence of suggestion, interest and so on are so different in every special case; and in addition to all these, the probable daily and yearly fluctuations in the ability of the organism, quite independent of work, will also influence the results.

If we add to all this the results when one method is controlled by the other, as in the observations of Thorndike or Ellis and Shipe, then we must acknowledge that we have many reasons for being cautious in generalizing from conclusions drawn from single experiments. Nor shall I quote the latest observations of American authors, which are probably well known to you, such as the valuable contributions of Burnham and Wells.

There can be no question about the fact that exercise of the faculties brings about better regulations of compensation, but it is of the utmost importance that work should not be continued until complete exhaustion ensues, and that it should be followed by the necessary rest. Certainly fatigue within physiological limits does not diminish the ability to perform work, and after the needed period of rest is at an end, ability increases by the exercise of one's powers, but no skill is gained by work done in a state of fatigue; on the contrary it sustains a loss.

When fatigue increases to such an extent that it is no longer compensated for by the amount of rest which immediately follows, then for the young begins what we call "overburdening." Weariness as a subjective sensation of a general state of the organism is no measure of the degree of fatigue, but it is an important warning which should not be overcome by a strong effort of the will or by chemical stimulants. When tired children are obliged to continue work they instinctively rebel.

It is easily understood that these physiological principles are valid for bodily as well as for mental work. But it is very difficult to draw a sharp line in every single case between physiological and pathological fatigue, that is to say, fatigue pure and simple and overwork, and still more difficult to draw it in general, *e. g.*, for a school-standard; but in every case one can demand, in the interest of the healthy development of the young, that full time for repose be given from one day to the next, because it is of the highest importance that sleep should be sufficiently long and sound, since youth has not only to make good the loss of energy, but also to build, or store up a surplus of material for growth of body and mind.

Physiology has succeeded in proving accurately that certain qualities of brain-work are localized in certain areas of the cerebral cortex; it is to be hoped that further investigation may supply us with more of such facts, although for complicated mental work the task would be indeed a very difficult one. But in every case we shall be at fault if we allow the doctrine of localization to lead us to the idea of giving rest to the brain by change of work. On the contrary, we must bear in mind that considering all we know about fatigue as a consequence of the change of matter and of the accumulation of certain substances in the blood, it must be regarded as a general state of the organism, and that therefore the available local fund of energy is just as quickly exhausted. In extreme cases even common experience shows that clearly; if we are tired out by physical exercise, by a stiff mountain climb or walk, *e. g.*, we feel that we are not fit for hard mental work; and after being thoroughly tired with mental work, we certainly shall not be likely to recover by playing in a football-match.

There was a time, at least in certain parts of Europe, when it was proposed to augment corporal exercise for school children as a compensation for brain work, with the purpose of giving rest and recovery by that means; how unjust such an idea was is shown by all we know about physiology. Special investigations by different methods have also been made on school children, and all these experiments have shown the same result. I shall only refer to one example from the interesting investigations of Teljatnik, of Odessa, who tested school girls 9 years old. The daily time-table was as follows:

Lesson 9 h. (Ist exp.)	till 9 h. 55 min.	.	5 min. recreation
—— 10 h.	— 10 h. 55 min.	.	5 min. ——
—— 11 h.	— 11 h. 30 min.	(IId exp.)	30 min. —— (principal recreation time)
—— 11 h. (IIId exp.)	— 12 h. 55 min.	.	5 min. recreation
—— 1 h.	— 1 h. 55 min. (IVth exp.)		

The experiments were performed in order to test the condition of mental ability for work. The tests consisted of the following among other things: the ability to work out different kinds of sums, the ability to retain in the mind numbers and words and to remember numbers and words. I shall not go into details in regard to the ingenious method used, but only say that for judging the condition of ability for reckoning it was noted what percentage of all the calculations made were right and for the ability of retention and recollection, what percentage of the words and numbers were reproduced right. The average result of all these three tests Teljatnik called the "ability for work," and with these results we shall occupy ourselves for a moment.

It was the custom in the school for the girls to do what they liked in the long break; some of them jumped about and played for a longer or shorter time during the recess, others sat and talked, quite at their ease. Now on three of the days on which experiments were made every game with active movements was forbidden; on three other days all the girls were obliged to play such games.

The initial disposition of the children was naturally not quite the same each day at the beginning of the experiments, and the average results on the three days were as follows:

Ist exper.	79.6	77.2
IId ——	72.2	74.8
	Main break without active games	Main break with active games
IIId ——	76.6	71.1
IVth ——	73.8	70.2

So we see that the average for the days without active physical exercise shows that the ability for mental work went up after the main break from 72.2 to 76.6, and on the days with active games the average fell from 74.8 to 71.1.

Now I find in the detailed tables of Teljatnik that on the three days with active movements the games lasted on the first of those days 10 min., on the second 23 min., on the third 20 min. If I look just at the IId and IIId experiment, that is to say the experiments before and after the long recreation, I find the following figures:

Without active games in the principal recreation time

	1st day	2d day	3rd day
IId exp.	71.5	74.5	70.6
	Principal recreation time		
IIId exp.	78.6	77.2	74.0;

On each of those days the ability for mental work rises.

With active movements in the principal recreation time

	1st day	2d day	3rd day
IId exp.	63.5	81.2	79.6
	Principal recreation time		
Duration of the games:	10 min.	23 min.	20 min.
IIId exp.	70.2	71.2	71.9

Here the ability for mental work goes down on the second and third day with 20 min. and 23 min. of active games, on the first day with only 10 min. of lively muscular exercise, rest from such exercise for a longer time followed, the result as to ability for mental work was no longer a lower but a higher one than before.

Here is shown by a pretty experiment of a single case, what we might expect *a priori*.

Mobility is a sign of health in children; they have a natural tendency to corporal movement; certainly if a healthy education is what we are striving for, we cannot possibly approve, from a physiological standpoint, of children sitting through a series of hours with no rests or only quite short interruptions. Even for boys and girls in high schools this practice is not to be recommended. It is necessary in every case that children should have rests between the lessons, in order to restore the want of balance in the muscular system, to improve the respiration which was retarded during mental work, to stimulate anew the circulation, because great blood vessels were unduly pressed by sitting, by bending the head, and so on, because active hyperæmia with sooner or later injurious consequences is caused by the continued mental work, and circulation is reduced by the superficial respiration. Even being obliged to sit for a long time on the seat which has become warm, is in itself unfavorable in certain respects. Therefore it is desirable that all scholars should have the opportunity of moving about even in the so-called "rests"—although on the other hand, it is clear that active movements of the great masses of muscles produce fatigue, which will not be favorable for the mental work to follow. Certainly we shall not give antidotes to the fatigue-toxin to the school children as a remedy, neither shall we make them chew cocaleaves, as the Indians of South

America used to do hundreds of years ago, when they performed the enormously fatiguing labor of traversing the Cordillera, in order to transport merchandise to the seacoast. If exhaustion of a store of organic material is marked by fatigue, and we endeavor to remove it by a specific anti-toxin, then the work would probably be done at the cost of further existing organic material; such a proceeding would be dangerous for any one who has to accumulate new material, although such drugs may be justifiably used in exceptional cases by adults, if urgent necessity should force them to do so. Neither can I approve of compulsory drill, which is already beginning to be in vogue here and there for scholars during a part of the short rests such as we have generally in central European schools. Drill exercises require energy of will and attention in every case, that is to say they employ the nervous centres in a large degree. For the *mens sana in corpore sano* it would probably be the best plan to interchange brain and muscle work more frequently than is done at present, but after every one of those exercises rest is needful. To find out the average optima for every age and every grade of schools in such matters would be a task for the experimental hygiene of instruction, but there cannot be any question as to the principle involved, and it was with a definite purpose that I recorded Teljatnik's experiments, to prove that there may be ways of finding out the best practical arrangements.

Then also in European continental schools the rests between the lessons are frequently spent in anything but a hygienic way. Often the children in the lower schools are obliged to sit in the schoolrooms during the breaks, or when they are sent out, especially in high schools, one may see pupils leaning on the walls in groups talking over their tasks, or stooping with their heads bent over their books, looking over lessons for the next school hour. It should also be a matter of education to teach the young how to rest as well as how to work.

I shall touch on another significant question in the relations of bodily and mental work. With regard to change of work and rest, it would certainly be a good plan to have part of the lessons in the forenoon, and part during the afternoon. This is more easily managed in boarding than in day schools. People are accustomed in many European countries to eat only a very small breakfast, and, in fact, children often have only a small cup of cocoa with a little white roll, then a heavier meal as soon as they return home from school. Now it is a physiological fact that there is a strong flow of blood to every hard-working organ; the consequence is that after such a dinner the intestines are richly provided with blood, and the brain is by no means sufficiently nourished for its work. Everybody knows the corporal and mental lassitude which results from such a dinner; if one overcomes that feeling by an impulse of will, and works energetically, one notices that the digestion is impaired. Now the process of digestion in the stomach lasts for some hours after such a meal, and the total pause between forenoon and afternoon school is generally about two hours, during which time pupils must go from and to school. The pupils in high schools especially after dinner are already under the exciting influence of what is expected of them in afternoon school, but it is also a very usual thing for them to repeat immediately after dinner what they are likely to be asked in the afternoon lessons. Besides this, scholars often have to carry a heavy bundle of books to school, making the way still more burdensome.

During the afternoon's lessons which follow, both pupils and teachers struggle with the requirements of digestion. Now, I do not remember hearing such complaints uttered about afternoon lessons in countries where a good breakfast and only a small luncheon is the custom, and where dinner proper follows after the day's work. If I may argue from my personal experience as a man accustomed for many years to take a heavy breakfast, I think that one can work very well after such a meal in the early part of the day, for it would seem as if the organism is so much restored by sleep that brain and stomach can work at the same time without difficulty. The disadvantage of the arrangement described above goes so far that Schmid-Monnard found more sickly children in the lower schools in Halle, where afternoon lessons were the rule, than in other schools there, which had the same curriculum, but in which all lessons were given in the morning. This fact is to be explained also by the obvious reason that those pupils who have school in the afternoon cannot join as much in open air games as the others, because in the cities, during the short time remaining before the midday meal, no games can be organized. It is difficult to overcome these disadvantages, especially in high schools with their great number of lessons; the only way would be to shorten the lessons and the curriculum, so that a greater number of lessons could be gotten in before the dinner; but even now people do not everywhere realize that, in order to obtain something of real effect in matters of hygiene, concessions are often indispensable, and change in methods of instruction or similar means of reform alone cannot do everything.

Quite recently Burnham has dealt with the question of the daily sessions afresh, and quoted the American literature also.

Singular relations between body and mind may be found as a result of examinations of massed material, *e. g.*, in the final examinations in European high schools; a great deal of all that is taught during the 7, 8 or 9 years' course in the different kinds of high schools has then to be known all at once. It is a characteristic feature of those examinations that many years later they are the subject of nightmares. How intense these impressions must be to produce such results! It is only some years ago that I had the last of such dreams, I hope the very last, although it is nearly forty since I passed that final examination, and I feel sure that I am not at all an exceptional case. These dreams often worry people, although as far as memory work is concerned they have forgotten in the lapse of some months after the examination the greater part of all these details, so painfully accumulated for the purposes of examination. When a boy used to cram for such an examination, he not only spent whole days and the greater part of the nights for months in studying, but he was during the whole time in a state of tension, because he could not always test himself in all the memory work to see if he was sure of knowing it, and he was therefore kept in perpetual anxiety as to whether he was sufficiently well up in his subjects, to enable him to get through the examinations. By degrees the tremendous burden on the memory, entailed by such final examinations, is being somewhat disminished in Europe. Very interesting are the results obtained by the Russian Ignatieff, who examined the pupils in a military high school, where there are complicated examinations lasting for weeks, for the purpose of obtaining admission to certain special courses, which lead to a higher career. Notwithstanding a prolonged time for sleep and an improvement in diet, regular losses in weight were observed in the pupils, averaging about 4.5 lb. (over 2 kg.) during the course of the examination weeks.

After the examinations two months of fatiguing camp exercise followed, and then six weeks holidays; even after the holidays the pupils who had gone through the difficult examinations, had not regained their normal weight, even at the end of that period of rest.

The nervous tension, the excitement which accompanies the examination and impairs rest and sleep, influences the psychical sphere in such a manner that the physical development is damaged—possibly sometimes in an irreparable way.

Noteworthy also is the influence of psychical work as discovered by Key's investigations in the Swedish high schools. He stated from statistics that the actual amount of sleep becomes less with pupils of the same age in proportion as the standard is higher so that, *e. g.*, among the 15 years old pupils

52 per cent. of those who were in the third standard slept on an average 8½ hours, but only 14 per cent. slept the same number of hours among those boys of 15 years who were in the fifth school year—the standard which the school organization has intended for pupils of that age. Loss of such an important factor in development as sleep is must if continually repeated have bad consequences upon the young. How far schools sometimes are from understanding this fact is to be seen, *e. g.*, from the rules of one boarding school in Germany, a so-called "institute of education," where the highest rate of sleep allowed is six hours. That is a relic of the middle ages.

Key has also incontestably proved in the Stockholm high schools that the percentage of sickly pupils is influenced by the greater or less amount of school work done at home. He reckoned out the average time spent on home work by all pupils, then divided the pupils into two classes, one of them containing the pupils who worked over, the other the pupils who worked under that average time; those working over the average time showed 5.3 per cent. more of ailing individuals than the others—and that in a country where in general the number of boys with impaired health has been found to be a high one. Similar results were obtained from analogous observations in a number of other small Swedish towns and in Kopenhagen.

It is, however, to be presumed that in moderate climates the meteorological influences which are continually changing during the year are not without effect. I could prove from the Vienna children's hospital statistics that the curve of morbidity becomes higher from September until about the end of March, and goes down between April and September. It is also a matter of fact that augmentation of weight has its phases in the lapse of the solar year; it would not be surprising if such reasons did not affect the sum total of mental ability also. We all know the investigations of Porter of St. Louis on 33,500 boys and girls. He inquired "whether dullness and precocity are associated with a physical variation from the mean so palpable that it can be recognized by the coarse methods of investigation practicable in school work." His figures show that pupils of a certain age are heavier and taller when found in the higher standards. I shall not go further into details, but every one who reads the results is inclined first of all to doubt their validity.

I was not able to make a similar investigation, but I have published in German a somewhat lengthy critical survey of the matter, and that induced Schmidt in Bonn to make a fresh investigation on 4,000 children, to confirm the results already obtained. Further publications followed in Germany such as those of Graupner in Dresden, who obtained incidentally the same results from another independent investigation on about 57,000 children; Samosch in Breslau, published an investigation upon about 2,000 children; in Berlin 20,400 children were tested; Bayerthal made investigations on soldiers and school children; in Austria Quirsfeld in Rumburg; Igl in Bruenn, and Rosenfeld in Vienna made contribution in various ways. In Antwerp Schuyten made investigations with the dynamometer. In the United States Christopher and Smedley tested thousands of children with the ergograph and dynamometer; Carman found bright boys and girls in general physically stronger than dull ones. W. S. Cornell examined Pennsylvanian children in different ways, and I. E. Bryan tested 10,130 Camden children; from these investigations it is also to be seen that there is a connection between physical defect and backwardness in learning. Gilbert, however, studied Iowa and New Haven children, and Boas Toronto children; they did not, however, draw their conclusions from the advancement in standards, but from the teachers' impressions of quick intelligence in the children and could not prove a permanent relation between physical development and mental ability.

In England Clouston and Shuttleworth, in America Dawson and Tarbell, and in Germany Schmid-Monnard have made observations upon defective children in particular. It is a well-known fact that children who are mentally inferior are also less capable of resisting sickness, and that their death rate is higher than that of normal children.

It was intentionally that I quoted, although only in a cursory manner, this long series of investigations, because the sum total in almost every case shows similar results, namely that as a rule children with a higher physical endowment surpass in physical ability also, those endowed with lower physical gifts.

Naturally the physical status of the organs of the higher senses must have great influence upon mental development. Kerr in London studied about 1,400 boys and 1,400 girls, who were divided into two groups, precocious children, that is to say, those who were younger than the average age of their standard, and backward children. The backward ones show in every year of the ages which were examined for statistic purposes a higher percentage of children defective in vision than do the precocious ones.

Striking single cases are also known that illustrate the connection between physical and mental development; a Berlin school girl of 14 years of age, *e. g.*, was thought to be deaf; but after the adenoids from which she had been suffering had been removed, the girl heard, but her mental development was only equal to that of a child two years old.

Gulick and Ayers found from their investigations in 15 schools of New York City that physical defects decrease with age; they say themselves "that the higher grades are to a certain extent made up of the survivors of the more fit," a fact which shows the great importance of the physical state upon mental development; but the authors find also that a consideration of probably "far greater weight is that children do actually outgrow their defects."

If we consider all these investigations and criticisms very carefully we may come to the conclusion that inferior physical gifts and development, as well as the existing of physical defects, will as a rule be followed by a lower physical condition, and therefore by small success in the school career, where so much depends on brain work—even if we are not far enough advanced to say with certainty how largely psychical inferiority is accounted for by physical inferiority, and how far ill success in education is everywhere due to this cause. But as a vigorous condition and development also influences future generations, it would be a matter to be regretted if the results of education itself as regards health were unfavorable to the higher development, since public education influences the people in every land more and more, and its results also in a physical direction must be of growing importance to every nation, and consequently to the whole human race—which is the greatest proof of the importance of school hygiene.

Our knowledge is added to like a mosaic piece by piece, and sometimes we imagine we have found the right piece to be put on a certain place of the mosaic, and alas! we find we are mistaken. Besides which, some results of investigation have a general significance, while others are influenced by local circumstances; we are far from seeing clearly in every direction, but so far as we can tell, mental work as one of the most complicated functions of the body, is not quite inaccessible to accurate investigation, and therefore we may expect further progress still in that direction, and we are entitled to suppose that the best methods of public education are of value to mankind in many different directions. But as exact knowledge only grows by degrees, then you must forgive me if what I have said in this lecture has been like the dissolving view of some disjointed pieces of that mosaic, to which we are each of us trying to add our share.

THE RESPONSIBILITIES OF THE TRAINING SCHOOL FOR TEACHERS IN MATTERS OF HYGIENE

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The training school for teachers has, I believe, three obligations to support in the matter of hygiene. First: It should make its environmental influence safe, sanitary, and hygienic. Second: It should turn out graduates whose physical influence is hygienic. Third: It should supply the school child, through its graduate teachers, with such information and experience as will lead him to become a factor in the solution of the health problems of humanity.

The first obligation is the obligation common to all institutions whose peculiar influences operate for any period of time upon the health of human beings. All such institutions are under a serious obligation to make those influences safe, sanitary and hygienic. The Training School for Teachers should support this obligation in the selection of its building site, architectural plans and material equipment; in the selection of its system of water supply, plumbing, heating, lighting, ventilation, sewerage and cleaning; in its provisions for the proper and adequate exercise of the fundamental health habits of the individuals under its institutional influences, through attractive and easy opportunities for physical exercise, recreation, rest, cleanliness (including bathing and care of the excretions), and for bodily nourishment. The Training School should further support this obligation through a careful exclusion from its student body of all individuals whose physical condition would be a menace to the health of their associates.

This first obligation is met by the employment of sanitary and hygienic experts for the selection of the building site, the architectural plans, the fixed and other material equipment, and for the supervision of certain phases of institutional administration; and by the employment of expert medical and hygienic service for the examination of candidates for matriculation, and for the inspection and examination of the student at appropriate intervals during his stay in the school.

This first obligation has to do primarily with the safety of the individual in the Training School. The second obligation which I wish to point out has to do primarily with the safety of the school children with whom the Training School graduate may later come in contact. I believe that you will agree with me that the Training School for Teachers must employ every reasonable means to escape the graduation of teachers whose physical condition would be a menace to the health of their pupils. The exercise of this care is the second obligation which, I believe, the Training School for Teachers should support. The penalty for hygienic neglect in the Training School may be paid by the later sacrifice of the health or even the life of the school child.

This second obligation is partially met by those measures applied for the satisfaction of the first. If the first is adequately supported, the support of the second will be simplified. If the institutional influences are safe, sanitary, and hygienic and if the individual has brought no latent disease with him, his physical condition on graduation from the Training School will be good. He will at least be not likely to contract disease while under ideal institutional conditions. But it is one thing to be well and another thing to be healthy. I believe this obligation of the Training School for Teachers does not cease when all the external institutional influences have been made properly sanitary and hygienic. The teacher should not be merely well. He should be actively and aggressively healthy. His tissue cells should be ready to furnish on demand any of the protecting immunizing physiological products that defend the vigorous, healthy human being from disease. This protective resource resides in the tissue cells of the human body. Science teaches that this function is more efficient when the tissue cells are properly exercised, adequately rested, well nourished, and clean. We secure these influences on the tisssue cell through the various proceedings that are included in physical education, or physical instruction, or physical training, or personal hygiene, or applied hygiene, or school hygiene, or whatever you choose to call the scheme of daily life which exercises the body, rests the body, secures its nourishment, and keeps it clean inside and out. I would then insist that the Training School for Teachers in order that it may graduate strong, vigorous and healthy teachers (this is my second obligation) should, in addition, give such instruction in the various subjects connected with the acquisition and conservation of health as will enable the prospective teacher to formulate *and apply* an intelligent policy of personal health control. Such a teacher is not likely to become a menace to the health of his pupils. Incidentally, he is more likely to become a success as a teacher.

The first obligation which I have cited is supported in the interest of the health of the individual for his own sake; the second obligation is supported in the interest of the health of the individual for the sake of his future pupils. The third obligation which I wish to present is supported in the interest of the individual because of his probable influence upon his future pupils, and through them, on society.

I would state this obligation as follows:

The Training School for Teachers is under obligation to give such instruction as will enable its graduates to become successful teachers of hygiene.

In order to support this obligation adequately, the Training School must give its students instruction and practical work in general hygiene with special attention to those phases of hygiene that have to do with school and home life of the child. The teacher's equipment would then include a knowledge of the fundamental facts which form the scientific basis of hygiene, and it would also include ability to apply these facts to the life of the child in the recitation room, exercising hall, playground, study room, and other divisions of the school and home. This would include the instruction we now give under such names as General or Elementary Hygiene, School Hygiene, Personal Hygiene, and Physical Education.

I insist upon the importance of this obligation of the Training School to prepare teachers of hygiene for various reasons. The world's wisest and greatest educators, have agreed, so far as I have been able to discover, that the sound, healthy body is of first importance in the education of the human being. The academic objects of the school curriculum are more satisfactorily realized if the pupils are healthy. If, then, the Training School gives its graduates successful instruction concerning the facts that regulate human health, it is supplying those graduates with a means for securing better scholastic work from their pupils.

In addition, it is our business to turn out efficient grammar school, or high school, or college, or university graduates. The graduate without health is a graduate with a limited efficiency. The healthy grammar school, high school, college, or university graduate is worth more to himself, worth more to his community, and worth more to his country because of his health. The baker, the butcher, the motor man, the business man, the farmer, the banker, the lawyer, the physician, the teacher—every man in every activity of life draws his vitality, his vigor and his endurance from his store of health; and upon his good health he builds his domestic, business, professional, religious, or academic success.

And again, the Training School for Teachers is under obligation to produce graduates equipped to teach hygiene successfully because of the unique opportunities the Training School has for educating the masses. Every teaching graduate of the Training School becomes a radiating point from which the educational influences of the Training School emanate in every direction. In his contact with, and influence on, parents and children, the teacher secures an opportunity which is found nowhere else in human affairs. This opportunity should be used in the interest of the common weal.

Disease is the penalty we pay for hygienic ignorance. We are ignorant nowadays because we are not taught. There is knowledge enough but it has not reached the masses. Every school child should know the simple ways and means of securing and conserving health; he should know the detrimental health influences of abnormal conditions and habits. Every school child should be forming proper health habits. Every school child should spend his school life under proper conditions of school hygiene. Every school child should learn before he leaves the school the main facts concerned with the causes of disease, the carriers of disease, our defences against disease, and the nature of our common diseases.

If the hundreds of thousands of young men and women who graduate from our grammar schools and high schools each year could carry with them an accurate knowledge of these subjects we would, in a few years have no native born parent ignorant of the fundamental facts of hygiene. The difficulties that now oppose the progress of hygiene in the school, in the home, and in the city and state would largely disappear. We would ultimately become a stronger, more vigorous, and more efficient race, better able to realize the higher ideals that make human life worth the living.

THE INSTRUCTION OF TEACHERS IN SCHOOL HYGIENE

By **Guy Montrose Whipple, Ph. D., Cornell University**

It is unnecessary for me on this occasion to dwell long upon the importance of instruction in hygiene. I hold it to be self-evident that every teacher and every child in our schools has the right to health, that when the state makes schooling compulsory, it thereby engages itself to provide that schooling under sanitary and healthful conditions. I hold it to be equally self-evident that no teacher can render to the community and to the pupils in his charge the best service of which he is capable, if he is ignorant of his own rights to health and careless of those of his pupils. On this account alone, instruction in the hygiene of the school environment is an essential part of the teacher's preparation.

Again, we live at a time when the problems of health are more and more engaging public attention. The fight against tuberculosis, the crusade for clean milk, the playground movement, the introduction of medical inspection, pure food legislation, agitation for the enforcement of tenement-house laws, the popularization of medical knowledge in magazine literature, —these are but a few of the activities that betoken present-day progress toward better personal and civic health. Teachers, then, need instruction, not only in those special phases of hygiene that relate to the school environment, but also, to the end that they may teach health more intelligently and preach health more enthusiastically, in the general principles of public health and sanitation.[1]

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[1] At the Second International Congress on School Hygiene, at London, 1907, this resolution was adopted:

Whereas the improvement in the health of, and the hygienic conditions surrounding, school children depends largely upon the intelligent co-operation, the competency, the interest and the faithfulness of teachers and principals in matters of hygienic importance, therefore be it *Resolved:*

That all schools having courses for the training of teachers should give instruction in (*a*) personal and school hygiene, and (*b*) the principles and practice of physical training. And that to each of these subjects should be given as much time as to the major subjects in the course.

That practical and theoretical instruction in personal and school hygiene should form a regular part of the curriculum of all institutions in which students are trained to become teachers in schools of all grades.

Granted, then, that instruction in school hygiene should be a fundamental feature of the training of teachers, a number of questions arise. Are such courses commonly given to teachers at present? How can the introduction of such courses be encouraged or assured? How can teachers in the field be instructed? What should be the length of the course? What should be the nature and content of the course? These questions I shall seek to answer so far as my time will permit.

(1). *Are courses in school hygiene commonly given to teachers in training at the present time?* I believe that I am correct when I say that instruction in school hygiene is not a regular, nor even a common, feature of the training of teachers in the United States.

I base this conclusion in part upon personal contact with teachers. So often have I been amazed at the lack of knowledge of the most elementary principles of school hygiene that well-intentioned superintendents and teachers may exhibit. Teachers in training may be excusable when they ask: "Why should I take a course in school hygiene? It's just something about measuring desks, isn't it?" But those who have been responsible for their training should be ashamed to have teachers in the field ask, as I have heard them ask: "Why should I need to know anything about medical inspection?" or "When shall we hear the end of this eye-glasses fad?" or "What's this silly fuss about adenoids?" or, as in one instance reported to me: "Why should I keep Johnny Smith out of school? I don't believe that scarlet fever is catching, anyway."

I base my conclusion, also, upon a somewhat hurried survey of the catalogues and courses of study in some 35 normal schools and college departments of education. I am informed that the Bureau of Education is now collecting statistics of the number of institutions that offer courses in school hygiene; until these figures are published, one must avoid more positive generalization. It is, however, safe to say that we are outranked by European practice in this particular. In Scotland, for example, the joint committee of university training centres provides that "the course of professional training shall include attendance at an approved course in personal and school hygiene, to extend over a period of two terms of at least ten weeks each, and to include 30 to 50 hours' instruction." This instruction, it is explained, includes not only lectures, but also visits to schools and study of their equipment from a hygienic point of view, together with practice in the physical observation of children and in the conduct of tests of sight and hearing.

(2). *How can the introduction of courses in school hygiene into the curriculum of professional training schools be encouraged and assured?* To this query I can only make a few suggestive proposals. I propose (*a*) that the heads of departments of education in our colleges and the principals of our normal schools collaborate in devising ways and means of introducing such a course, (*b*) that the need of the course be presented in educational journals, before teachers' institutes and state teachers' associations, (*c*) that the need of the course be brought as forcibly and as clearly as possible to the attention of state superintendents of public instruction,[1] (*d*) that the American School Hygiene Association lend its aid to the movement, and (*e*) that the Bureau of Education at Washington lend the weight of its authoritative support by publishing appropriate bulletins and by otherwise promoting the introduction of this work.

(3). *How can school hygiene be taught to teachers in the field?* This question possesses perhaps even greater importance than the preceding one, since the number of teachers in the field is greater than the number in training, and since they can be less easily reached or affected by the adoption of new regulations on the part of the governing boards that control our training schools. A possible solution of the question has come to me recently through conversations with a number of school superintendents. I find that many superintendents, who are firmly convinced of the need of holding periodic teachers' meetings, are at a loss to know what is best to do with these meetings when they are held. Why, now, should not these superintendents take up the study of school hygiene with their teachers? The subject seems to me well-nigh ideal for this purpose; for, as we have seen, many teachers sadly need this knowledge; it has unquestionably a direct and immediate bearing upon their work; it concerns teachers of all grades from the kindergarten to the high school; and it offers unlimited scope for study, though returning value from even a limited expenditure of time and effort.

More specifically, I suggest that the school or public library be equipped with the best texts in school and personal hygiene, and that the superintendent assign topics for discussion at each meeting. These meetings may be devoted to formal papers by different teachers, to lectures by physicians, health officers, eye and ear specialists, university or state-department authorities, or to informal discussions led by the superintendent or his principals.[2]

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[1] The aim should be, of course, to obtain official recognition of school hygiene as an integral part of the required course of training in all the normal schools, training classes, and schools of education that are under state supervision or control. In New York State, to illustrate present conditions, the Department of Education at Albany issues a syllabus which prescribes in some detail the professional courses (history of education, psychology, etc.) that must be taken in the universities, or passed in state examinations, before certain certificates are granted to college graduates. Since school hygiene is not specifically mentioned in this syllabus, the subject, when given at all, is, perforce, given as an elective course only.

[2] The possibilities of this plan have so appealed to me that I have prepared a small guide book (*Questions In School Hygiene*, published by C. W. Bardeen, Syracuse) with special thought of its use by bodies of teachers in the field, as well as by classes in institutional courses.

(4). *How much time may, or should, be spent by teachers upon the study of school hygiene?* For teachers in training, a course of 30 hours (classroom meetings) is to be regarded as a minimal expenditure of time. If the students have a fair knowledge of physiology, and preferably, too, of psychology, this time is, I think, adequate for the assimilation of the general principles underlying the subject. Because, however, of the fact that school hygiene is peculiarly a subject that exacts specific knowledge of a large number of details, it is possible for advanced students or graduate students to carry their study much farther with corresponding advantage, especially if drill or research 'practicums' can be arranged.

(5). *What should be the content of the course in school hygiene?* Without wishing to put stress upon the order of presentation, I would include in a course on school hygiene at least the following main topics, or groups of topics: (*a*) the schoolhouse site and grounds, (*b*) general principles of schoolhouse construction, (*c*) the form and size of the classroom, (*d*) the illumination of the classroom, (*e*) school furniture, with special reference to desks and chairs, (*f*) heating and ventilating, (*g*) sanitation (in the narrower sense), (*h*) the hygiene of vision, (*i*) the hygiene of reading, (*j*) the hygiene of writing, (*k*) the hygiene of the ear, (*l*) the hygiene of the mouth, throat and nose, (*m*) school diseases and accidents, (*n*) medical inspection, and (*o*) miscellaneous topics, such as growth, instruction in sex hygiene, fatigue, overpressure, rest-pauses and the school programme, sleep, exercise, diet, and clothing.

Allow me, if you will, to add some words of comment and explanation.

Teachers not infrequently express the feeling that the study of schoolhouse construction (site, illumination, heating and ventilating, etc.,) is unnecessary for them, since they can have no direct share in the erection, or even in the equipment of the building. This view is surely unwarranted; the teacher should look upon the school building and its grounds as his immediate

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As the title implies, this book takes the form of a series of questions; these questions are grouped under appropriate classificatory heads and prefaced by page or chapter references to a number of standard books. With the questions before them, the teachers are not confined to any single text-book, but can draw upon numerous sources for their information, especially by following the suggestions for supplementary reading that have been embodied in the guide. This method, I am confident, will enable superintendents and teachers to undertake the study and application of school hygiene with profit and advantage both to themselves and to the children in their charge. Lectures by local talent could be secured in almost any community, and it might not be impossible to enlist the interest of mothers' clubs, child-study clubs, and similar organizations, whose purpose coincides, in part at least, with that of the organization of teachers.

professional environment, and he should know how to make the most effective use of this environment, whether good or bad; he should also have clearly in his mind the possibilities of ideal schoolhouse construction, so that he may understand in what ways his own building might be improved, so that, if, as not infrequently happens, extensive alterations are made in old buildings or new buildings are erected, he may be able to make helpful suggestions, and to request, if not to demand, those things that he knows are possible and desirable.

So far, too, as illumination, heating, and ventilation are concerned, these are matters that continually demand technical knowledge of the teacher.[1] I would, accordingly, give careful attention to these phases of the course in school hygiene; I would ensure real comprehension of sanitary building construction by the use of abundant photographs, charts, and other illustrative material, and by directing members of the class to visit and report upon the construction and equipment of school buildings in actual use.

Much the same comment may be made with regard to the study of school furniture. I cannot accept the statements made by some persons that "there is nothing in the school desk problem." Here, again, a study of the actual seating of children, supplemented by the exhibition of photographs, models, and samples of various desks, with practice in adjusting desks and chairs to pupils, will show the reality of the seating problem. Special attention should also be paid to the teaching of corrective exercises, *i. e.*, exercises on the order of the 'setting-up' drill that will counteract the evils of bad desk habits.

Under sanitation I would include a study of the general principles underlying the operation of different systems of sewage disposal, of the problem of pure drinking water, of the need of school lavatories and baths, and especially of the best methods of mitigating the dust nuisance, with reference also to the rules that should govern the work of janitors in sweeping, dusting and cleaning the school building.

The study of the hygiene of reading and of writing should be approached from the study of the hygiene of the eye. Students should, therefore, first be made thoroughly familiar with the mechanism of accommodation, and should understand the genesis and the methods of testing and of correcting (in so far as this is possible) such defects as myopia, hyperopia, astigmatism, color-blindness, and the grosser forms of ocular imbalance.

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[1] Thus, for instance, in the course of a thorough study of the sanitary condition of a certain grammar-school building, I found that, although the building was an old one and confessedly poorly built and equipped, it was plain that the teachers were not getting the best use of the heating system that was installed, and that they were neglecting to adjust the window shades or seat the pupils so as to utilize the light that was available.

The hygiene of writing should reveal the far-reaching importance of the writing posture, and this should lead to an understanding of the relation of different systems of writing to bodily posture, and of the duties and responsibilities of the teacher in overseeing and developing proper habits of posture.

In the study of the ear, as in that of the eye, it is imperative to make clear the operation of the organ itself, to convince teachers of the intimate relation between sensory defect and school efficiency, and to practice them in conducting sensory tests in an accurate manner. The limitations and sources of error that inhere in these tests must not be disregarded.

Similarly, general knowledge of the anatomy and physiology of the mouth, nose, and throat is a prerequisite to the study of the hygiene of these important structures. Models, diagrams, and even dissected specimens, should be brought into the classroom, and practice should be given in the inspection of the buccal and nasal passages in children. Needless to add that special emphasis must be laid upon the serious and far-reaching consequences of adenoids and defective teeth.

School teachers cannot be expected to have a thorough technical knowledge of the so-called 'school diseases,' but they can be expected to be thoroughly familiar with their symptoms, and, in a general way, at least, with their causes and consequences. More particularly, they should know what preventive measures may, and must be, taken to avoid the outbreak of epidemics and the spread of infectious diseases. This knowledge may profitably be summarized by each student for himself in the form of a table that shall indicate (*a*) the cause, (*b*) the symptoms, (*c*) the period of invasion, (*d*) the period of incubation, (*e*) the period of infection, (*f*) the length of quarantine, (*g*) the complications to be feared, and (*h*) the teacher's duties, with respect to diphtheria, whooping cough, measles, scarlet fever, chicken-pox, smallpox and mumps. All teachers should be in a position to give instruction in the origin, symptoms, prevalence, outcome, and treatment of tuberculosis, and should understand clearly the nature and importance of bodily resistance to infection from it and from other infectious diseases.

Of the non-contagious diseases and defective conditions, I would require general knowledge of scoliosis, chorea, epilepsy, and feeble-mindedness.

Ability to handle the more ordinary types of school accidents, such as nose-bleeding, burns, sprains, fainting, and even the more serious accidents, such as bleeding from cut arteries and veins, broken limbs and drowning, may be acquired without much difficulty, so far as verbal instruction can avail

The course in school hygiene cannot neglect the discussion of medical inspection, since teachers must be led both to encourage the adoption of the system in their own schools and to co-operate intelligently with nurses and physicians, when it has been introduced.

There remains, finally, a group of topics that I have referred to as miscellaneous topics ; but they are not on this account of little importance. I have in mind the hygiene of growth, rest, sleep, fatigue, exercise, instruction in sex hygiene, and questions relating to diet and clothing.

The study of normal growth leads naturally to a discussion of physical, and hence of mental, retardation, with reference to its causes and treatment, and to its effect upon school work and progress.

Although we are far from full scientific knowledge of the complex condition termed fatigue, we can, nevertheless, familiarize teachers with its more patent symptoms, and can discuss with profit the optimal adjustment of the school programme (order of exercises, time of taking up different subjects, number, length, and nature of recesses, and other rest-pauses).

I deem it self-evident that every teacher of school hygiene must give his students a frank and objective talk upon the sex-hygiene problem, and that he must encourage them to work out the solution of instruction in sex hygiene with perseverance and tact.

The programme that I have sketched, ladies and gentlemen, is doubtless incomplete, and it is certainly open to revision. The detailed elaboration of any course of study requires more time and experience than has yet been our lot in the teaching of school hygiene. But that the general principle upon which this programme is based,—the necessity for accurate knowledge on the part of every teacher of the fundamental facts of school hygiene,—is correct, I have no doubt.

The teacher holds a strategic position; he controls in large measure the environment and the formation of habits and ideals of the coming generation. With the teacher, therefore, rests the possibility and the hope for progress in health and for the attainment of that happiness which good health alone assures.

RESEARCH IN SCHOOL HYGIENE, IN THE LIGHT OF EXPERIENCES IN AN INSTITUTION FOR THE FEEBLE MINDED. ABSTRACT

HENRY H. GODDARD Ph. D., Vineland, N. J.

It may be a surprise to some that this subject is to be discussed by one who is working with imbeciles and idiots. But I can assure you that in one institution at least there is a most unique opportunity to make researches in School Hygiene as well as in many other lines.

Some four years ago a great man conceived a great idea. The superintendent of an institution for the feeble minded had for some time been asking himself what justification could society find for the large sums of money it was expending on its defectives.

His conclusion was that there was no justification for more than a reasonably comfortable living unless society received some return. What return can it receive? The greatest in the world! Here are hundreds of unfortunate beings whose condition cries out to be investigated. We have these children under ideal conditions for studying them and their problems.

An institution for defectives should be a laboratory for scientific research into the condition and causes of the thing which has made the institution necessary.

That is the great idea! Supt. Johnstone is a man to whom the thing that ought to be is the thing that must be. Therefore when he had evolved that idea he said to a group of thoughtful men who had assembled to discuss some of the larger problems in an informal way, "Gentlemen, I have the money to run a department of Research for a year. Tell me where I can get a man."

It would have been impossible to have found either cash, collateral or promises to back up that statement. Nevertheless it was a true statement, when one understands just what sort of commodity it is that makes possible the greatest human achievements. It is faith. Superintendent Johnstone is a practical optimist. He is like Francke, who founded the Institutions of Halle on a few florins and an abundance of faith. Only Johnstone did not have even the few florins. He had the conviction that the thing ought to be done—and he did it. The money came. Enough for that year; enough for the second year and enough for the third year. And it will come for all the rest.

Here is the opportunity: nearly four hundred feeble minded boys and girls (many of them men and women in years) to whom nothing but good and happiness can come from a scientific study of their cases. Here is a superintendent and Board of Directors who are so wise that they believe that everything should be done to facilitate such research work.

Under these circumstances we have laid out a rather comprehensive plan which I cannot now detail to you.

You will now understand that in connection with the carrying out of this plan I have collected the data which constitute what little contribution I may be able to make to this discussion.

One of the first things we did was to try to determine the growth curve for mental defectives. We have the measurements of some eight thousand children. We have divided this according to the grade of the child into high grade or nearest normal, middle grade (imbecile) and low grade (idiot) and plotted the growth curve for each group. This is the result:

The idiots are farthest below normal in both height and weight, and at the age of nine years they begin a still greater deviation from normal, and as the years go by fall steadily more and more.

The imbeciles are a little below normal all the time and at the age of fourteen begin their increasing deviation or drop from the normal curve.

Lastly the high grade curve is practically coincident with the normal up to the age of nineteen, when the feeble minded boy stops growing while the normal boy goes on until 23 years of age.

This is for boys. The girls' curves show the same thing to a certain extent, but the course of the curve is interfered with by another factor.

Recall, if you please, the pubertal acceleration where the girls' curve crosses the boys. If now you imagine the curve of our feeble minded girls drawn in you would see it taking its up-shoot a little later than with the normal but going much higher, so that we have the surprising phenomenon of feeble minded girls growing much faster and being heavier and taller from thirteen to fifteen years of age than the normal girls.

If now we seek for conditions to explain this we are met with the following considerations:

The feeble minded girls in institutions, upon whose measurements these curves are based, live according to hygienic principles. They eat plain, wholesome food at regular times and in proper quantities. They have abundance of sleep also at regular hours. They have much play and exercise in the open air. They have nothing to worry them. Their heredity is poor.

The normal girls are quite different. It must be remembered that all our statistics are based on school girls and that the girls who are still in school from 13 to 15 are of the better class socially. Many of them are in the high school, many of the rest are preparing for it. They are not generally living under hygienic conditions. They are beginning to enter into social life; are often out rather late at night at parties, etc., thereby interfering with regular sleep and not infrequently getting too little sleep. They are eating, as a rule, more fancy food, much candy, and on the whole a far from satisfactory diet. Add to this the weight of their school work with its worry and anxiety, and we have a picture the very opposite of the other one. And these children have good heredity.

Now in view of these facts, it would seem as though the feeble minded group, living under good hygienic conditions, was more likely to give us a normal curve. In this event we should have to conclude that the usual pubertal acceleration is not as great as it ought to be, but is actually retarded by the relatively unhygienic lives of our girls at this period.

If the interpretation be correct, it surely points to a radical change in our treatment of the adolescent girl both in school and at home.

OPPORTUNITY AND NEED FOR RESEARCH WORK IN THE HISTORY OF EDUCATION

By **Paul Monroe, Ph. D., Teachers College, Columbia University**

As educators we are concerned with two factors which effect the advance in our educational activities; one is the improvement of practice; the other, the increase of knowledge which furnishes the basis for that improvement in practice.

It is unnecessary to argue that there can be no improvement in practice without such an increase in knowledge; and unnecessary, in a body of scientific students, to urge that any increase in knowledge, no matter how remote and recondite, has an ultimate bearing of a practical character in that it will affect conduct or practice when such knowledge is given its proper setting.

It is to be regretfully admitted, however, that the same cannot be said of all university groups, so far as our own subject is concerned. For we have to confess to a very general skepticism on the part of university faculties and of the departments of long standing, concerning the possibility of the scientific study of educational activities, either of exact, comparative or historical character, and a disinclination to any obligation on the part of the university towards educational practice outside of university instruction itself. No doubt both this skepticism and disinclination to admit obligation are due to the non-scientific character of prevailing educational practices and to the paucity of results of such scientific studies as have been made: hence, both the need and the opportunity for such work as our topic indicates.

Increase of knowledge is to be effected in two respects: (1) in the higher level of intelligence on the part of the rank and file of the practitioners of our profession. This in reality concerns the professional training of teachers, or rather *is* the professional training of teachers. The dissemination of knowledge concerning our professional activities is a function of our universities and colleges as well as of normal and training schools, possibly also of our secondary schools. That this should be so has been the argument of enlightened educators, in the English speaking race, from the time of Mulcaster, Brinsley, and Francis Bacon. Bacon termed the educational process "tradition";—that process by which one generation hands down to the succeeding one, those practices, customs, ideals, achievements which it considers to be of value;—and argued that the study of tradition should find a place in every university. But because education *is* tradition, it tends to be hampered by the inertia of social institutions beyond most other aspects of social life that have come under the ægis of special professional classes.

So we have awaited our own day to find a tardy, reluctant and partial recognition of the obligation of the university to society in respect to this phase of institutional activity which is most essential to present social welfare and to social progress.

But this aspect of our subject is to have special consideration in to-morrow's conference.

That phase of our topic which we have for special consideration to-day relates to the second aspect of the increase of professional knowledge: namely, the actual enlargement of the bounds of knowledge concerning that phase of social activity which we term education. There will be little or no aversion on the part of university authorities or of university men, in whatever line they may be, to the incorporation of such study within the range of university work, so long as the need and opportunity for such can be indicated and some actual achievements demonstrated.

Scientific investigation of the phenomena of education falls into a variety of fields; that using symbolical or logical methods, that using experimental methods and that using comparative methods,—the three great scientific methods. The logical or symbolical method has long been used; and the development of the philosophical treatment of education,—the formulation of the theory of education,—has received the attention of acute minds on many occasions for many centuries. The chief contribution of the German students during the 18th and 19th centuries were along these lines. And there promises even now a revival of interest along this line, stimulated no doubt by the progress in allied lines by the use of the experimental and comparative methods based upon the progress of physical, biological and sociological sciences. The progress of the 19th century in the field of educational thought and practice was chiefly due to the use of the experimental methods, essentially in the field of psychology.

The application of comparative methods to educational data, as in the field of historical and sociological phenomena, is the most recent development. It must be confessed that little progress has been made as yet. One phase of this new development of scientific study of education by comparative methods, namely, that in the field of historical data, is the special subject of my brief discussion.

Naturally the development of such study in the educational field follows a long way after its development in other aspects of historical phenomena. But as the centre of interest has shifted from the old political, military and dynastic aspects of social life, or at least the interest has broadened to take in other phases of life no less important, though somewhat less definite and tangible, this development has gone on apace.

For the most part such work as has been done of critical value, of any great importance, has been conducted as a phase of the study of culture, with no special interest in education as a formal process. It is the university as an institution, or the development of some special field of knowledge as a part of the general growth in intelligence, that has been studied; not the actual formal process of the transfer of knowledge from one generation to another, or the dissemination of information and technical ability, or the effort to secure social progress through attractive rather than compulsory force. Now, however, there seems to be developing some genuine interest in the scientific investigation of historical phenomena, that may be classified as educational in the more restricted sense.

Our main interest is in the opportunity and need for such work. Both the opportunity and need can be made somewhat clearer by a brief consideration of what has been done.

The summary is very brief so far as English and American contributions are concerned. The history of universities has always commanded the interest of a few of their sons and such records have been more or less critically examined by students. But it has awaited the work of Mullinger, now a generation ago, or more especially that of Rashdall, for any genuine scientific investigation. Recently, however, we are reaping the fruits of the establishment of chairs in education in universities of Great Britain, in the work of Woodward, Watson, Adamson, Montmorency, Leach, and others. We have no work to compare with this in America.

Outside of a few theses, still fewer monographs, chief among which is the notable contribution of the chairman of this conference (Commissioner Brown), there have been practically no American contributions. The ordinary histories which give a survey of the entire educational development or of the development of any particular type of institution, suffer on almost every page from that bane of uncritical work, namely, the acceptance of anything which appears on the printed page or in a written document as an established fact.

The same criticism cannot be passed upon the German work in this field. As is to be expected German scholarship has long cultivated this field. In a peculiar sense, the history of education, as an organized body of knowledge, is a product of

German research. From the time of the earlier students of the subject, in the middle of the 18th century, down to the present the interest and productivity has been continuous. The earlier works were of two types, either a history of educational institutions or of leading educators of particular countries, or the application of some system of philosophy to pedagogical doctrine, as in the case of Rosenkranz.

The later systematic works suffered in a way from a bias of the author—this cannot be eliminated. The first great systematic treatise, that of von Raumer in the early 40's—suffered throughout from the bias of an extreme classicist in dealing with realistic and all more democratic social movements. If the university presentation of the subject suffered from the bias of the classicists, the ordinary organization for purposes of instruction in the state supported schools for the training of teachers, suffered from the bias arising from an official religion and from a system of theology to be defended and inculcated. But the more recent work, such as Specht of a generation ago, or of Heubaum, or even Sherer of recent appearance, are beyond such reproaches. Such monographs as the series edited by Steinhausen (Monographien zur deutschen Kulturgeschichte), stand as a monument and as a model of combination, scholarly worth, and of popular presentation.

The opportunity and need for research work in the history of education, I will consider briefly in regard to the American field.

As to opportunity in our own educational history may it be noted, in the first place, that in the case of the American colonists we have the first instance of the founding of a civilization or culture or society, in which the founders kept a complete record of their motives and actions. These records are for the most part extant and include the materials for an educational history. These founders of the new society were self conscious to a high degree, examined their motives and were conscientious in recording their actions since they considered themselves to be a chosen people, with divine injunction resting upon them. Even in the case of the commercial colonies, the religious interest was so great as to demand some attention to the training of children in a formal manner.

Second: Note that these records are available. Not only the transactions of the general executive and legislative bodies are preserved in detail, but the local records are also fairly well preserved and are accessible. The New England town records are well preserved. In the case of 30 or more of these towns they are available in printed form. These contain most minute records of educational activities. In some of the larger towns the records of the school committee are also available.

In the case of New York the records of the Dutch West India Company were unfortunately destroyed, as late as the 19th century, but there are many other local records preserved. The parish records of Virginia and other southern colonies are many of them in existence. The examination of these for materials relating to educational activities is bound to throw new light on the life and ideals of these colonists and compel us to reverse our notion of their educational activities and interests. The records of the Society for the Propagation of the Gospel in Foreign Parts, which cared for the elementary education in all the royal colonies are extant practically complete.

The general records of the colonies are available and the educational material has been made fairly accessible. For the early 19th century there is a mass of material all unassorted, unanalyzed and undigested. There is no lack of opportunity.

A third point in regard to the opportunity is to be noted. The students of the early history of our country tell us that the most interesting of all points is to establish the actual transfer of institutions from Europe to this country; that this can be done very rarely. Here lies a very great opportunity for students of education, for it can be done regarding the school and educational practices. Despite the fact that the controversialists argue that there were no publicly supported schools in England, and no system of elementary schools as convincing proof that the colonists got their idea of schools from Holland or Scotland, it can be demonstrated that elementary education even in New England was a direct transfer from England. For the early schools laws in all our colonies were but modifications of the poor laws and the laws governing apprenticeship in England, and the early schools were fit instruments for carrying these out.

A fourth point to be noted in connection with the opportunity, is that the educational activity is about the only phase of the life of our people, especially in the colonial period, that has not been critically examined.

Colonial politics, colonial government, colonial religion, colonial customs, colonial dress, colonial literature, colonial industries, colonial theology, colonial philosophy have all been investigated, but colonial educational institutions, practices, ideals, methods, customs, have hardly been touched so far as the first hand information is concerned. And yet no phase of life is more thoroughly controlled by tradition than is education, and hence more worthy of study. The 19th century received its educational inheritance direct; and few fields of research are more fertile, and promise a more practical and serviceable harvest than that in education. The district system, the free school, the academy, the non-sectarian college, the state university, all took their origin from conditions in the 18th century. They are the essentials of our educational system to-day.

The Need. The opportunity is great: the need is no less. So many reasons for such study suggest themselves that it is possible in the brief time at our disposal to suggest only a few type arguments.

And, first, one phase in the general need: such a study would assist in removing a great number of errors in our accepted educational traditions. Such for example as the conclusion that there were no schools and no interest in education in Virginia drawn from Gov. Berkeley's oft quoted report to the English government to the effect that he "thanked God that there were no free schools or printing presses and hoped that there would not be for a century." The most significant portion of the testy old governor's report is the sentence preceding, which is always omitted, namely, regarding education there prevails "the same course that is taken in England out of towns: every man according to his ability instructing his children."

Or more interesting yet, as indicating how a historical myth can grow up, take the case of the first New York school, long proclaimed as the first school in America. This myth all grew out of an inference which O'Callaghan, the first official historian of New York, made in his compilation of the early lists of settlers. From the examination of various legal and other historical documents, Mr. O'Callaghan drew up a list of the officers and servants of the company, among which was found that of Adam Rolandson, the first schoolmaster. Or to be exact, O'Callaghan's statement is, after giving the list of officers in the service of the company: "At Fort Amsterdam, at which place the Rev. Everardus Bogardus officiated as minister of the gospel." . . . "Adam Rolandson, 'schoolmaster,' arrived about the same time." Broadhead followed O'Callaghan with his history of New York and referring to the year 1638 makes the statement that "Rev. Bogardus continued to officiate as clergyman at Fort Amsterdam where Adam Rolandson was schoolmaster." Mr. Dunshee writing on the history of the Dutch Reform School in New York shortly after this puts the inferences of O'Callaghan and the statement of Broadhead together, interpolates a few words of his own, and makes Rolandson, who evidently was present in New Amsterdam in 1633 and who in 1638 does sign himself schoolmaster, as schoolmaster from the first. So that the history of the case then reads as follows: "In an extended list of the officers and servants of the Dutch West India Company in 1638 Rev. Everardus Bogardus is again mentioned as minister at Fort Amsterdam where Adam Rolandson was still the schoolmaster." (Since 1633.) This statement has been repeated by all subsequent histories of education. As a matter of fact, the only evidence upon this educational history was all based upon a single affidavit made by Rolandson in 1638, to the effect that in 1633, while standing at the landing place in New Amsterdam, he witnessed some scandalous conduct on the part of one of the settlers. This affidavit was made to impeach the character of the witness testifying slanderously as to the character of the pastor. In the ecclesiastical records published in 1901, some further documents bearing upon this matter are brought to light, one to the effect that the same Rolandson applied for a license to teach and was examined by the Classis at Amsterdam according to the statute passed in 1636. This license was granted on the 4th of August, 1637, with the statement that he had requested the license in order to go to New Netherlands as schoolmaster and was accepted, the record closing with the statement "and he was sent thither." There he is again found in 1638, where he probably could not have arrived before the fall of that year, as we know from the records of the ship's arriving. So that the whole story of the much heralded first school in America falls to pieces after a little examination of the record and the long debate as to the priority of educational institutions in this country, upon which has been built a great structure of educational history, is found to have been erected on a single document of a scurrilous character, having absolutely no reference to education and resulting in the wholly erroneous use of a harmless inference of an early historical investigator. Our history of education is full of such unsubstantiated inferences.

Second, we should note the need to the teaching profession itself. Here the value of historical study is the guidance it will give in testing the great variety of ideas and methods brought forth each year by educational experimenters or novices. For the most part these so-called *new* methods or ideas are not new; most of them have been suggested time and time again; most of them have been tried, most of them have failed, or proven but partially successful. To this class belong the great number of so-called "fads and frills." No profession is so dependent upon tradition as is that of the teacher. In attempting to throw off the thraldom of tradition the innovator is apt to go to the other extreme and develop a fad or append a frill. Now an educational fad is simply a worthy educational idea or practice out of focus,—exaggerated. An educated frill is a desirable supplement to existing educational endeavor but not organically related. Historical research will reveal such endeavor as made in the past, and by presenting all the conditions of the experiment, will enable it to be judged on its merits and in its relations. All of our educational mistakes have been repeated over and over. Most of the worthy modifications have been attempted time and time again before they are properly accepted and incorporated into the dominant body of practices. Historical study will develop a saner judgment to pass upon all individual suggestion claiming the merit of novelty; a keener insight to consider an experiment or an accepted practice in all its relationships; an open-mindedness toward suggestion of improvement and a keener desire to bring that which is to what it might be.

Third there are the needs which suggest themselves when education is considered from the standpoint of university studies or disciplines. By the use of historical and of experimental scientific methods we can bring our work into harmony with other university studies. When the professional student of education can demonstrate that he uses the same scientific methods, has ideals and aims of pure scholarship as well as those of practical accomplishment, works upon similar materials, the prejudices which arise in academic circles towards any new and partially formulated subject will disappear, so far as his own subject is concerned. Each new field of human interest as it has passed through the field of partial organization has met this criticism and opposition of the devotees of better organized intellectual interests. The natural sciences themselves had a longer and more bitter struggle than any other; hence it is to be expected that they would repeat the opposition to the newer social science, which from the very nature of the phenomena dealt with can never possess the same definite organization. But the scientific study of education has won a place in all higher institutions of learning, has won the respect of the modern university man, because of its practical necessity and real influence; perhaps, as yet, it is too much to ask for intellectual sympathy from the devotees of these disciplines where the "pure" is yet sharply distinguished from the "applied."

Finally there is the need of the student. There are some decided advantages to be derived from the use of the exact scientific methods of study of educational phenomena which do not inhere in the use of the comparative historical method. On the other hand this latter method possesses distinctive merits of its own; and these merits commend it especially to the student of education. The experimental method depends for its success always upon the elimination of many factors which actually exist in the problem; to such an extent is this true that the problem worked with and solved is usually a highly artificial one, isolated from real life by successive elimination of factors which do not enter into the particular problem attacked, but do enter into life wherever the problem occurs. Now the historical problem is always the solution of organic relationships by means of comparative methods. The student must always deal with the problem as it actually occurs in life, and reaches his conclusions by comparisons with similar problems of actual life or of the same problem under somewhat different social conditions. In other words such study tends not only to produce those results which inhere in all scientific training, but also to develop those very qualities that are most used by the successful teacher.

He develops not only keen insight and good judgment but also the intellectual sympathy which produces that breadth of interest, that "many sided interest;" which is the test of the well developed personality of the adult as well as the ideal and objective of schoolroom instruction.

UNDERGRADUATE INSTRUCTION IN PEDAGOGY

By **Thomas M. Balliet**, Ph. D., Dean of the School of Pedagogy, New York University

Should undergraduate instruction in pedagogy in our colleges differ from graduate instruction in our universities? If so, in what respects? Should it have the same aim and be only of a more elementary character? Should it aim to lay the foundation for future graduate study? Or should it aim to prepare the student to go out after graduation from college and teach school?

These are questions, it seems to me, which have not received the attention which the present situation in our colleges demands.

In the case of students of law and of medicine, and to some extent also those of engineering, certain studies pursued in their undergraduate course and bearing directly on their profession are credited both towards their Bachelor's degree and later towards their professional degree. In some universities the first part of the professional course is allowed to be substituted for the last part of the undergraduate course and is credited towards both degrees. It is clear that in these cases, undergraduate studies of a professional character should be such as are fundamental to later professional study, and that the aim of the instruction should be to prepare the student for such study. The student of law does not begin the practice of the law, and the student of medicine the practice of medicine, immediately upon graduation from college; but he begins at once his professional studies and does not enter upon the practice of his profession until his entire professional course is completed.

The case of the student of pedagogy, however, is different. Immediately upon graduation from college he enters upon his work as a teacher; only in rare cases does he go from the college to the university and pursue a course in education there before beginning to teach. This fact has a vital bearing on the question as to what the character of his undergraduate course in pedagogy should be. The time will, no doubt, come when a college graduate who is to be a teacher will be required to devote several years to professional study in a university before entering upon his profession, but that time is apparently in the distant future; and until then provision must be made in our colleges to give that "first aid" which will enable the fresh graduate to teach and manage a school with at least moderate success until he can learn by experience what he ought to have learned in a professional school before he began to teach.

Professorships of pedagogy in colleges, I believe, are temporary means to help out a desperate situation. Under present conditions they seem to be the only means by which many teachers for our secondary schools can get any professional training whatever. Ultimately we shall recognize the fact that as law schools are necessary to train lawyers, medical schools to train physicians, so there is need of professional schools in our universities on a graduate basis, for the training of teachers for secondary schools and the supervisory positions in the elementary schools.

But to meet the immediate needs much can be done in an undergraduate course, and much is now being done in some colleges, even by a single professor, that will be of great practical value to the young graduate who cannot afford to go through a professional school. Obviously in such a course no attempt should be made to cover the entire field as would be done in a university school.

The question, then, as to what part of the field should be covered, where the emphasis should be placed, and in what respects such a course should differ from a graduate course becomes a vital one. It seems to me that we are not now making a sufficient distinction between the two. Undergraduate courses in many colleges seem to differ from graduate courses in quantity rather than in aim and character; and much of the instruction, while it may have a high academic or culture value, does not directly train the student to do the work of the school. As most college graduates who enter upon the profession of teaching do so immediately upon graduation from college, the aim of the pedagogical training in college should be very practical. Such training should be of a character to give them all the help possible to teach and to manage a school. Not to speak of the interests of their pupils, which are paramount, their own reappointment and their future career depend largely upon the quality of their first year's work. Unless the undergraduate instruction in pedagogy enables young graduates to teach and manage a school better than they could have taught and managed it without it, school authorities will not make much account of such training in the selection of their teachers. When you cannot detect a trace of such instruction in the schoolroom work of young graduates — as I have personally known it to be the case in not a few instances—school authorities will not take the training very seriously.

An undergraduate course in pedagogy should have a twofold aim. First, it ought to bring before the student the leading problems of education and impress on him their bigness and their difficulty. The young graduate is apt to appreciate only the academic side of the teacher's equipment, and to imagine, as some older persons in college faculties still do, that teaching is mainly a knack and does not involve any very profound or perplexing problems. It is possible to introduce a student to the study of pedagogy by a clear presentation of the problems of pedagogy just as it is possible to introduce him to the study of philosophy by a preliminary statement and brief discussion of the problems of philosophy. It matters little whether such a course be called "Philosophy of Education," "Principles of Education" or "Introduction to Pedagogy," only so the aim be what it should be. Certain problems of education can be best formulated in connection with the history of education, but as these are problems of social or state education and the young teacher has at first to deal mainly with those of individual education, these latter should receive the emphasis.

In the second place, such a course should aim to give him the practical training which will actually enable him to teach school. This involves instruction in methods of teaching and in methods of managing a school. It is not the larger problems of school administration which he needs to study—the organization of a school system, types of schools, the appointment of teachers, the financing of a school system, and others like them. With these even the most ambitious young graduate can hope to have but little to do for some years to come. It is rather the problems of class discipline, class management, methods of promotion, and the management of the apparently petty details which so largely determine the successful running of a school, which he needs to understand. If there is time for a brief discussion of the larger questions so much the better, but they must not crowd out the others.

The instruction in method should cover the subjects which he is likely to teach. I have found that many young graduates are almost protoplasmic in their lack of differentiation and are willing to undertake to teach almost any subject in the curriculum of the secondary school. This condition of mind suggests that an undergraduate should be made familiar with the principles underlying method as determined by subject matter and the laws of mind, and with the best methods of presenting quite a large group of related studies in the curriculum of secondary schools. These methods should be discussed in detail, even to the suggesting of happy devices. Anything short of this will not answer his needs. To assume that if a young teacher is taught the principles of method he can and ought to make his own applications, is to take an untenable position. Often, after a teacher understands the principle involved, the suggesting of happy devices is the most helpful thing that can be done for him. We do not train surgeons by teaching them merely the "principles" of surgery and then letting them apply them themselves, but we teach them the details of operations. Even after such training they will sometimes travel a thousand miles to witness an operation performed by a great surgeon. The best training for the lawyer and the engineer cannot afford to leave out the practical side. The training of teachers is no exception. It must not be predominantly theoretical in an undergraduate course, where there is in the main time only for the practical.

It is a weakness of the small village high school that there are too few teachers to make much specialization possible. A teacher is obliged to teach too many subjects to teach any of them well. On the other hand, it is a weakness of the larger city high school that there is too much specialization. It makes the teacher narrow in his outlook, he fails to see the close interrelations of subjects, he is more interested in his "specialty" than in his pupils, and usually has little interest in the broader educational problems of secondary education. A high degree of specialization is absolutely necessary in a university where research must constitute a large part of the work; but in a secondary school, where at best only the elements of any subject can be mastered by pupils, such specialization is fatal to good teaching and to the growth of the teacher. Because of the elementary character of the work, the teacher in a secondary school must find his chief interest in his pupils, who present to him ever new and fresh problems, and not in his subject. Every such teacher should, therefore, be prepared to teach an entire group of related subjects. Every teacher of Greek should also be able to teach not only Greek history, but also Latin and Roman history, every teacher of any of the natural sciences should be able to teach any other or all of the natural sciences in the course.

At all events, he should be able to teach either physics and chemistry or any other two of the sciences, and not confine himself to one science. Every teacher of mathematics should be able to teach every branch of mathematics taught in the school and physics besides.

Accordingly every student should be well trained in the method of teaching at least one group of related secondary school studies.

I am aware that there is a prejudice in many college faculties against pedagogy as such and particularly against instruction in method. Such instruction is characterized as not "cultural," not "scholarly," and is thought to be out of keeping with the dignity of collegiate instruction. This is a prejudice which has been partly justified by the superficial literature on pedagogy, especially that on method, which we have produced in this country, but which is being rapidly displaced by a literature of a more scholarly kind. It is a prejudice which must be patiently dealt with and which will in due time surely die out.

It seems to me one of the most pressing problems in pedagogy to-day is that of method. We have had so much superficial literature on it that it is difficult to interest the theoretical student in it. It is the subject in which teachers of pedagogy in colleges and universities are weakest to-day. Of what practical value is all our study of educational psychology, of the history of education, of the philosophy of education, our child study, our experimental pedagogy, if it does not finally result in the devising of better methods of teaching and make the teacher more skillful and effective in his work?

The question as to who shall give this instruction in method is one to which various answers are possible. It is obvious that no one person can give it. The professor of pedagogy may be familiar with the details of method in several groups of secondary school studies, but he cannot compass the entire curriculum. In a few colleges it has been found feasible to have this instruction given by other members of the faculty, each professor teaching the method of his own specialty. In many colleges—perhaps in most of them—this is not practicable to-day, because most of the professors know little of secondary school problems and conditions and of the modifications of college methods which these make necessary. As a rule, college methods of teaching, even if they are good for college instruction—which they not always are—are very generally bad when employed in the secondary school. Probably the most satisfactory solution of the problem under present conditions is to have part of the instruction in method given by the professor of pedagogy and the rest by successful teachers in neighboring high schools.

By way of supplementing this training in method, provision should be made, as is now quite generally done, for the visiting of nearby schools in which the student can witness the working out of what he is theoretically taught. Where possible this should be followed by a limited amount of practice teaching. All this is now generally recognized. But what is not yet recognized is that, without specific instruction in method to interpret to the student what he sees, the visiting of schools is of little consequence; and that, without previous instruction in method and without careful direction and critical supervision, practice teaching is of little value.

To what extent should the history of education be taught to undergraduates? The history of education is a part of the history of civilization and is a subject which ought to occupy a large place in a graduate school of education; but it is not a branch of pedagogy which directly helps the young teacher to do skillful teaching or to govern his school, and should therefore occupy quite a subordinate place in an undergraduate course. Furthermore, it is a subject the thorough treatment of which requires a degree of preparation which few undergraduates, if any, have. It involves a knowledge of the history of philosophy, of social and industrial as well as political history, of church history, and of the history of art and of literature. Without such preparation much of the subject remains unintelligible to the student. It is a branch of pedagogy which should in the main be reserved for graduate work.

All that should be attempted in this subject in an undergraduate course, should be: First, to show the student how society in all ages has used the school to solve certain of its problems and to perpetuate civilization and culture; and to impress on him the function of the school in the social heredity of the race. Secondly, to trace the origin and growth of the ideals of education which are dominant in the educational thought of to-day. For the former purpose, a comparatively few well-planned lectures will answer; for the latter the material indicated by a book like Quick's Educational Reformers will be ample. It has been said that such a course in the history of education would seem superficial to the student and would not command his respect. I think it can be said, without unfairness, that where this is the result, it is not the fault of the course.

The question of the psychology that should be required—both in quantity and kind—is often not easy to solve. Unfortunately the psychology taught in our colleges to undergraduates is very largely experimental psychology and is not the sort of psychology which appeals to them; nor is it the psychology which is of much value to the prospective teacher. All professors of pedagogy recognize this fact, and they usually lug into the course, somewhat surreptitiously, as much of the psychology which is helpful to the teacher as they can, under what they denominate ''Principles of Education'' or ''Philosophy of Education.'' So long as it is not called ''Psychology'' the department or professor of psychology does not object. Such subjects as memory, imagination, types of mental reproduction, habit, instinct, the feelings, characteristics of adolescence, fatigue, are subjects which ought to be discussed with undergraduates, but with special emphasis on their application to teaching and to life. A number of simple experimental studies in experimental pedagogy can profitably be made for which no intricate apparatus is necessary, if only to check the tendency to form hasty conclusions.

Much of this instruction can be effectively given in connection with the instruction in methods as the immediate reason for the method. Much of the instruction in principles of education can be given in the same way. To summarize briefly, I would say that we ought to discriminate more than we do between the aim and character of undergraduate and of graduate instruction in pedagogy. The aim of the undergraduate instruction should be much more practical than it now is. It ought to treat every subject with direct reference to its practical bearing, and aim to do all it can to make the student as efficient a teacher as possible the very day he enters the schoolroom. College training in pedagogy will not permanently retain the respect of school superintendents and principals unless this is accomplished. Up to the present, the value of such training has been largely accepted on faith.

On the contrary, in the graduate school of pedagogy of the university, organized like any other of its professional schools, with a Faculty each of whom can devote himself to one department of pedagogy, and with a student body that is mature and most of whom have had some experience in teaching, the aim should be different. Here the history of education should occupy a large place; the philosophy of education should deal in a scholarly way with the great educational problems and with the conditions and methods of their solution; experimental psychology should have its place, and experimental pedagogy should be assigned a large place—much larger than it now has; the great problems of administering our city and state school systems should be discussed, and the details of schoolroom work may now well be assigned a subordinate place or omitted; the instruction in method should dwell not on devices but on the psychological basis of method and on the necessary modifications of current methods, familiar to the student, in the light of the results of psychology and of experimental pedagogy.

Along with all these courses, more strictly pedagogical, the student should be required to take at least ethics, sociology and the history of philosophy.

Finally, a school of education of this kind should make ample provision for research. The teaching profession has a right to look to these university schools of pedagogy for new light on educational questions. Teachers in elementary and secondary schools are too much burdened with their daily work and have not the necessary facilities to carry on investigations as the professors of pedagogy in universities have. They can rightfully demand of the university that it aid them in solving their perplexing problems.

THE DEPARTMENT OF EDUCATION IN COLLEGES FOR WOMEN

By ANNA J. MCKEAG, Ph. D., Wellesley College

A department of education should, to a certain extent, be adapted to its academic environment. In the colleges for women the conditions are different from those found in the state universities and the teachers' colleges; distinctly cultural aims receive greater emphasis. Moreover, only about one-third to one-half of our students expect to enter upon definite salaried occupations or professions.

Because of these and other conditions, it would be inexpedient, even if it were desirable, for those of us who teach education in colleges for women to attempt a differentiation of undergraduate introductory courses on the basis of the vocational or non-vocational aims of our students. I believe that such a differentiation (in the first year's work in the department) would be undesirable, even if it were expedient. The prospective teacher, the prospective home-maker, the prospective social worker, may profit equally from the same first course in education, just as the future journalist, physician, and engineer, from the same freshman course in English. Differentiation properly comes later, in advanced courses.

That the two courses most commonly given as the first courses in the department of education (History of Education and Principles of Education) should be given in the same manner and in the same classes to professional and non-professional students (in colleges for women), is a point that needs to be emphasized. Much of the discredit that has attached to our departments of pedagogy has been due to the fact that we have addressed ourselves too exclusively to teachers. Education is a public institution and as such is worthy of study by all college students. Let us catch in the net of our introductory courses as many non-professional students as possible, for of such is the future school committee.

A good deal of diversity of opinion still exists among us as to the *aims* of the first two courses in education. I believe that, in the first place, the informational aspect of the subject should receive due emphasis. Information-courses are, it is true, at a discount in collegiate circles just now, but surely a reasonable amount of extensive work is necessary in order that the student may get any kind of orientation for his future intensive courses. A clear, orderly, and systematic presentation of the great educational systems and theories is desirable for first-year students in the department of education.

Closely allied to this informational aim of our introductory courses is a second and equally fundamental one. Courses in education should exemplify a good method. Such method will vary with the course, it will vary with the equipment of the instructor, it will vary with the previous academic history of the class, but it is important that we should give in our departments really good teaching. I should not wish to be understood as undervaluing the subsequent presentation of the subject of general method or of special methods in a separate course; I am speaking now merely of the first year's work in the department.

A third of these more general aims of introductory courses may be characterized as inspirational. One of the great utilities of the study of the History of Education is that, through this subject, prospective teachers gain a feeling of professional pride, an *esprit de corps*, akin to that which is recognized as a powerful stimulus to good work in other professions. In these days of research work and critical scholarship, we college teachers are prone to relegate enthusiasms and ideals to the lumberheaps of our academic attics, forgetting the very great importance, to most young people, of just such subjective factors.

To what extent should the first year's course in education be professional, in the sense in which the term professional is commonly used? As institutions of higher learning, colleges very properly demand that courses in the department of education shall not be inferior to courses in other departments, judged from the standpoint of scholarship. The superintendents and principals of schools rightly ask that our students shall "make good" in the schoolroom. Both of these demands are reasonable. There should be, and I believe there is, no antagonism between knowledge and efficiency. The introductory course in the History of Education, for instance, may have both cultural and practical value, if presented from such a standpoint as that which was described by Dr. Suzallo in a recent paper: "A selective, interpretative, and fully unified treatment of educational experience in its various aspects and relations, used as an aid in the formulation of a theory for the control of the present practice which is to be viewed as the latest stage in our educational evolution."[1]

Introductory courses in the principles and the history of education should, it goes without saying, have constant reference to actual schoolroom conditions. The study of children and observation of schoolroom methods and practices should form an important part of the student's work. So far as my knowledge extends, departments of education in colleges for women have been most cordially given by superintendents and principals ample facilities for studying school work under natural conditions.

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[1] Proc. Soc. College Teachers of Educ., 1908, p. 54.

Among the problems most difficult of solution in college departments of education is that of the place which should be assigned to practice teaching. It may be seriously questioned whether students get any permanent good from what may be called "sporadic" practice teaching; and the exigencies of undergraduate schedules seem to preclude the possibility of anything else. The ideal solution of the problem seems to consist in the addition of a year of graduate professional work, of which the regular systematic teaching of a class for a semester shall constitute a part.

Most of our professional students desire to go into secondary school teaching on leaving college. While it is desirable that the fundamental importance of elementary school work should be brought to their attention, and while it is to be hoped that eventually many of our best graduates will be drawn into the elementary schools, it must be remembered that the body of college graduates is still a comparatively small one, that secondary schools need pedagogically trained teachers, and that the field of elementary education is already largely occupied by the normal schools. Hence, largely as a matter of expediency, and without any thought of assigning any superior importance to one set of schools over the other, it may be better that colleges for women should make a special effort to send out properly equipped teachers for secondary schools,—for a few years, at least.

I should like to outline a course in secondary education, which might profitably occupy the greater part of a year of graduate professional work in colleges for women.[1]

1. A study of the development of secondary education, with special reference to the development of the American High School.

2. A study of the fundamental principles underlying the education of adolescents. Physiological and psychological considerations should receive due emphasis, and there should be a careful study of the hygiene of instruction.

3. A study of the organization and curriculum of two typical high schools; one a city high school, the other a village school.

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[1] This course is being given at Wellesley College (1909-10).

4. Each member of the class should make a study of the special methods of teaching one high school subject or group of subjects. This will include: (1). A study of recent educational reports and the best books relating to the teaching of this subject or group of subjects. (2). Observation of the work of skilled high school teachers of the subject. (3). Instruction in good methods of arranging and ordering the material in the subject. This part of the course should be given by an instructor qualified both by scholarship and by secondary school experience to give such instruction.

5. Practice teaching. Each member of the class should be required to teach a class for a semester in her chosen subject. This should be done under the joint supervision of the department of education and the principal of the high school.

These seem to me to be among the legitimate aims of departments of education. It goes without saying that we should make it perfectly clear to our students that we hold out absolutely no hope to the mediocre, the indolent, the careless, or to those of unsuitable personality, that by our courses they may, in some alchemic manner, be changed into good teachers. There are other limitations that we must admit: we are, as it were, but middlemen between the producer and the consumer; between the pure psychologist and biologist on the one hand, and the schools on the other. Yet our field is none the less useful and none the less definite.

To summarize:

The work of at least the first year in departments of education should be given to professional and non-professional students in the same classes.

Work in observation of children and of schools should form a part of the introductory courses in education.

Informational, cultural, and inspirational aims should not be neglected.

More narrowly technical courses can be given to best advantage to graduate students. College graduates should be encouraged to give a year to systematic and professional preparation for high school teaching.

Our departments should include a sufficiently large teaching staff to make possible to instructors a personal knowledge of the capacities and aims of their students.

EDUCATION AS A COLLEGE SUBJECT

By **Edward Franklin Buchner, Ph. D.**, Johns Hopkins University

Two things stand out in a very interesting way when one comes to view the situation surrounding education as a college subject. To such as "believe in" education, the recent widespread introduction of the subject into the curriculum of the colleges and the universities is most gratifying. The records of this movement, which have been made, for example, in the reports of the Commissioner of Education of the United States, by Bolton, Farrand, Kinnaman, Luckey, and others, show that the subject has acquired a most hopeful, and in many respects remarkable, intellectual interest. The range of historic and present day facts and the seriousness of the scientific foundations of theory alike show the inordinate gains which have been made so rapidly. On the other hand, the resistance in higher educational circles against "pedagogy" has not entirely ceased. The older conception, which interpreted the teacher exhaustively in terms of scholarship, lingers in many places outside as well as inside academic walls. It cannot be denied that this resistance has been and is good for both the scientific and the academic integrity of our subject. It must, as it should, win its way into a confidence that demands, and is entitled to full justification.

It is particularly encouraging to note the striking advances which education as a specific topic has made. Restricting the view to a few American events, one becomes impressed with the unusual broadening which has come to it in a few decades. Seventy years ago (1839) our first normal school had its beginnings here in Massachusetts. *Forty* years later (1879) we find in Michigan the first university chair of education, marked by reason of its helpful continuity with more recent developments. Nearly *twenty* years more pass (1898), and we discover in Teachers' College a university school or department of education in its affiliations with Columbia University. A full *decade* more brings us well within the thought of these days of celebration when we signalize the twenty years of achievement at this institution. Whether the same rate of gain shall continue to hold in the future is a fair hope that must be left, not to the prophet of to-day, but to the historian of *five* years hence. No one of these movements has supplanted any of the others; instead, each has been a special stimulus to those which followed. The rapid acceleration of speed in the widening sphere of content and method in education has been nowhere more emphatically recorded than in the contributions and aspirations which have flowed forth from these walls during the two decades over whose termination we make festival at this time. There is ample reason for sincere congratulation upon the newer character that has become the possession of education in these days. The closer definition of problems has opened the way for more careful and exact scrutiny of methods of inquiry until we have long since passed the hour when our subject has become the happy recipient of the best that is to be gained from the application of the technique of almost every mode of human investigation.

The rapid series of events which have won for our subject an increasingly favorable recognition in academic centres may also be regarded as significant in another direction. The peculiar emphasis placed upon education to-day cannot be viewed other than as one of the quickening processes by which democracy becomes conscious of itself. The American public has, from the early days, believed in the striking necessity of education as the most distinct social force. And, the practice of teaching and the experience in administering schools of almost all orders have proceeded with the conviction that this force is amenable to an increasingly direct and scientific control. It is true that education as an art, and not America, was "discovered" first; but it is also becoming more and more true that the inner logic of our typical social and political institutions is working its expression out into the insistent demands of our national life that clamor at the doors of our higher institutions of learning for satisfaction. For this reason, if for none other, the normal school could not remain typical of our profounder belief in the democratic efficacy of education as a practice. Our educational problem in its theoretical aspects has just as definitely outgrown the distinctive excellencies of the normal school as the latter has found itself incapable of modifying itself to meet the needs of the changing complexion of our more richly varied modern life. The normal school, therefore, properly continues to exercise its special and important function of training teachers for our elementary schools, while the institutions of higher education have found it more and more clearly to be their own duty to enrich the content of education by investigation and to disseminate this knowledge and its methods by training teachers for our higher and more special schools. It is such a train of inner events which accounts for the excellent external fortunes of education as a college and university subject.

It is not my wish at this time to reiterate the many words that have been said during these recent decades in favor of education, nor to sketch the arguments which have been devised for the support of the growing belief in its academic integrity. Those who are interested in this celebration, whether absent or here assembled, are now pretty well agreed upon the intrinsic merits of education as well from the cultural as the professional point of view. It may, therefore, be more serviceable should I venture to suggest some less patent, but none the less weighty, considerations which tend to determine the good and ill fortunes of education as a college subject.

Speaking in the full light of the historical and scientific interpretations now in our possession, it must be said most emphatically that education as a college subject depends chiefly upon the particular college itself. And by the college, we must understand its traditions, its location and the relative density of population in which it is centered, its financial resources, its modes of appeal for students, its purposes so far as these are socialized and democratized, and finally the institutional interest it may have in the specific future welfare of its students. These items come close to an exhaustive description of any given college. No one of us need review at length institutions of his acquaintance without finding such as readily illustrate these dependencies. A college far removed from centres of population is not inclined to sense the duty of recognizing education as a future life interest of some or all of its students. On the other hand, the college situated in the midst of a populous area, or even a state university irrespective of its location but sensitive to the public's requirement of trained citizens—not to say teachers, is more than likely to be alive to the civic service that is immediately possible of realization through a well-balanced establishment of education as a subject of teaching and study. Again, a college loaded with more or less unwieldy traditions, and at the same time light in financial resources, is not apt to hasten the introduction of education. Its conservatism pledges it to a maintenance of the longer standardized subjects. On the other hand, it is not an unknown practice on the part of young institutions, 'unhampered' by traditions, students, or funds, to resort to the establishment of a "normal department" in the hope of securing students for the institution as a whole. It is, however, chiefly when a higher institution awakens to the necessity as well as the possibility of performing a distinct social service that the welfare of education is most likely to be promoted. There remains to-day scarcely a college or a university that is not increasingly recognizing its public and social obligations, and is not endeavoring to modify its ideals and equipment accordingly. The old days of collegiate isolation and academic indifference are practically gone. Into this newer situation education is working its way more and more acceptably. But, into a detailed elaboration of the bearings of these factors, either with reference to the attitude of the college towards education as a proposed subject, or with reference to the fortunes of education after it has become an accredited interest in the college, the limitations of this conference hour do not permit us to go.

The other group of contingencies of which I wish to remind you may be stated very summarily. When education as a subject finally gets into the college, what it becomes,—or, what becomes of it, —depends upon the man who put, or who keeps, it there. And this is almost identical with saying that it depends upon what education is, or is thought to be. If the traditions of former generations and the experiences of past attempts at schooling are conceived to be the best avenues for securing training for to-day, then the history and the classical literature of education become over-emphasized. If the generalizations of individual development and training are the chief goal, then the theory or principles of education determine the prevailing interests.

If the manipulations of the agencies most effective in handling masses of children in the light of natural limitations and of the current demands of democracy are the goal, then education tends to be restricted to school administration. And so on to the end of the chief topics that constitute education as a subject of teaching and study. But, happily, we have well passed through the stages when history, theory, methods, hygiene, and economy were each given a radical emphasis, and the collegiate standing of our subject has become an encouragement for each of these formative educational problems. Furthermore, there is definite progress made in our approaching standard evalution of these factors, irrespective of the future prospects of the college student who is to become a citizen trained in thinking over the problems inherent in the community interest in a system of schools, or who may become a teacher trained in the demands of a more and more intelligent and responsible citizenship.

It is not too much to say, finally, that the college should consider the intrinsic merits of education, both as a 'subject' and as a part of life,—its real value in relation to academic culture, before reaching the decision whether the study of it should be included in its own curriculum. While the study of education should, on the one hand, tend to "professionalize" the future teacher, it does, on the other, definitely "liberalize" the college student. Here, indeed, must be sought the last claim favorable to education as a college subject.

THE HEALTH OF TEACHERS

By W. S. **Small**, **Ph. D.**, Washington, D. C.

I ask your attention, for a few minutes, to the consideration of the health of teachers as illustrating the general thesis of this conference, "The Need of Investigation in the Field of School Hygiene;" and, more especially, the motives, by appeal to which, investigation may be made effective, both in itself and in practical results.

From a practical standpoint needs are purely relative. From a scientific standpoint, investigations in the field of school hygiene are needed to fill gaps in knowledge. It is enough that here is ignorance. Curiosity is sufficient motive. The desire for knowledge constitutes the need. To the lay mind, however, this is foolishness—and in large measure the community mind is *lay* with respect to the hygienic aspects of education. It is an exceedingly vital matter, therefore, to find needs which appeal to the lay mind, motives for investigation and application of hygienic principles that will seem worth while to those whose interests are practical rather than theoretical.

From this standpoint, therefore, I wish to present some brief observations upon motives for the investigation of the health of teachers. Scientific curiosity at once says: "We ought to know about this matter; we ought to know whether the health of teachers compares favorably with that of the members of other professions; we ought to know what diseases teachers are specially liable to; what conditions in school life are especially unfavorable; what sex differences there are; what differences there are between teachers of different grades (elementary, secondary, higher)." Practical interest asks, however: "To what end? What will be done, who will be benefited, if such questions as these are answered?" It must be shown that the answers to such questions have immediate and practical significance if we would win the co-operation of the practical minded. For my present purpose, practical motives may be generalized into three classes: self-protective, humanitarian, and economic.

Teachers should be motivated by self-protective interests. Teachers, after all, are human beings with about the same constitutions as other human beings. Doubtless it is true that altruistic motives, closely allied to the parental instinct, are powerfully operative in the real teacher. The aim and rewards of teaching are the welfare of others. To spend and be spent is the normal business of teaching. But joyous expenditure of energy in service is possible only to him who hath energy. If every teacher were thus actuated by ideal motives, were serving in the "noblest of professions" purely in the interest of humanity, and not at all as the most convenient means of a livelihood, health as a means to that end would still be a solemn duty—the duty of being as efficient as possible in the chosen service.

That their own welfare and happiness are at stake is sufficient reason why teachers should have an active interest in the investigation of the hygiene of their own occupation. It doubtless ought to be sufficient reason why others, especially parents, should be similarly interested; and *doubtless it is not.* Something more personal and intimate is required to stir the interest in any community except of the slender few who are humanitarians by nature. Sweat-shop evils draw but a languid protest from most people until they appreciate that sweat-shops are a menace to the community health, and, therefore, to themselves, as individuals or as families. Sometimes, even, the concrete demonstration of an epidemic is required.

To win the general attention from parents to the importance of protecting the health of teachers—which of course is the end of investigation—it must be shown that teachers of subnormal health are a menace to children; or, at least, that the value of the school to the children varies directly with the health and vitality of the teacher. This will hardly be questioned by competent school and medical men; but about the best that can be done at present, in presenting the matter to the public, is merely authoritative general statement. We know in a general way, by common experience, that teachers are liable to nervous disorders and that this common experience is confirmed by such few careful investigations as have been made. As to the real extent and degree of this factor we are in the dark. Mr. W. H. Allen declares that it has come to be "a matter of course that teachers are nervous wrecks" and "this fact is offered by teachers themselves as sufficient explanation for impatience, irritability, and downright ugliness of disposition." If Mr. Allen's assertion be even half true the moral damage to children from this source is incalculable. Not to mention nervous injury and intellectual loss, the moral damage furnishes the strongest kind of motive for investigation of the health of teachers, a motive that will be effective in enlisting the interest of all intelligent parents. The fact that a certain percentage of all the teachers in the community are suffering from nervous strain, so that their personal happiness and joy in life are impaired, may elicit commiseration and some deprecatory protestations that something ought to be done; but the fact that this does not stop with the sufferers, but is transformed into positive damage to the children in our several homes is quite another matter. We as parents want to know whether the teachers of *our* children are thus suffering and we are even interested in knowing both the extent and the nature of the ills to which the conditions of school life render the teachers especially liable.

Finally there is the economic, the tax-payer motive. As humanitarians or as parents, we of the community may be appealed to on account of the injury teachers, as a class, suffer from the unhygienic conditions of school life or the injury that our children receive through the agency of teachers who have thus suffered; but there is still the tax-payer part of us, individually and collectively, that is not moved by these considerations. We must be shown the wastefulness of ill-health in the teacher. The American Health League is presenting some very impressive figures as to the economic waste of ill-health. The loss from premature death, reduction of labor on account of preventable sickness, the cost of sickness in the form of the expense of doctors and nurses, and reduced efficiency due to impaired vitality—these losses amount annually to a total of billions of dollars. We have here a powerful motive for investigation and improving conditions of life. It becomes a matter of real consequence to the tax-payer whether the hygienic conditions of teaching are such as to guarantee the best services of which the teacher is capable.

AN EXPERIMENT IN LEARNING A FOREIGN LANGUAGE

By **Walter Libby, Ph. D.**, Northwestern University

During recent years the question of how foreign languages may best be taught has been more than once submitted to investigation of a more or less strictly scientific sort. One might mention in this connection Conradi's study of 1905, in which he showed how poor may be the Latin vocabulary of pupils who have been taught Latin one or more years by the usual defective methods. Then, in 1906, Schuyten published his investigation in reference to the learning of foreign words —German, French, and English—in which it was shown that the ability to recall the vernacular word on the presentation of the foreign word is frequently two and three times greater than the ability to recall the foreign word on the presentation of the vernacular. In this same year W. A. Lay, in his periodical on experimental pedagogy, attacked the problem of direct and indirect language instruction by his method of experiment, research and statistics. In 1908, Prof. O. Steinel published his work on grammar instruction on a physiological basis; while, at the beginning of that year, Prof. E. J. Swift put on record an experiment in the teaching of Spanish carried on under his direction by Mr. William W. Hall, of St. Louis.

No one who stops to think of the amount of time and money consumed in the teaching and learning of foreign languages in our secondary schools, and our so-called institutions of higher learning (in which a large part of the curriculum is given up to the teaching of elementary foreign language), can doubt the importance of the matter with which these investigations concern themselves. It was with the hope of contributing something to problems arising in language instruction that the experiment here recorded was undertaken.

The special purpose of the study was to discover the relative value of making the word or the short sentence the unit in modern language instruction for different types of learners. Naturally other matters, worthy of the consideration of all language instructors, were brought to attention. In the conduct of the experiment we aimed at preserving as far as possible the classroom conditions usual in high school and college, with the important deviation that each exercise lasted only twenty minutes.

The procedure was to place before the members of a class of ten in experimental pedagogy an exercise in Italian consisting of ten short sentences of approximately five words each and ten detached words, *i. e.*, about sixty words in all. None of the class had previously studied Italian, though, as we shall see in detail later, all had studied some foreign language. On the first two occasions the exercises were written on the blackboard; for all the other tests the exercises were typewritten and put before each student. During twenty minutes the Italian was translated, read aloud, written out by the members of the class, and otherwise learned and taught. Eight exercises were given in all. On the fifth occasion a nine-line quotation was substituted for the short sentences; the passage was a very impressive one from the Inferno. Again, at the seventh exercise, it was thought well to vary the monotony by substituting for the sentences eleven lines from an opera. This song and examples of the sentences and words will be given later. An interval of one week elapsed from the beginning of one exercise till the beginning of another, except that there was an interval of two weeks between the sixth exercise and the seventh. A certain procedure was adhered to so far as rigidity did not interfere with the necessary conditions of good teaching, such as the avoidance of boredom, the maintenance of interest, and respect for the individuality of the students. It is intended later to compare the results of other procedures with the results of the pedagogical method here employed. We used the means that seemed likely to lead to the most marked success.

Each exercise was begun on Monday morning, and, as already stated, the students had the words and sentences before them for a space of twenty minutes. On Wednesday, at the expiration of forty-eight hours, they were asked to write down all that they had retained. Then the Italian was once more placed before them and they were asked to write out a translation. Data were thus secured for a comparison of their powers of free reproduction with their powers of recognition, recall through association, etc. During the progress of the experiment the learning process was discussed in class, and in addition the students made two written introspections, one at the time of the fifth exercise, and the other five weeks after the last exercise.

About the close of the semester, four weeks after the eighth exercise, all the Italian sentences and words were once more submitted and translations again obtained. This was a crucial part of the experiment and gave evidence, as we shall see, of the superiority of the short sentence over the word as the unit of modern-language instruction. The success of the members of the class in learning the exercises was also compared with their previous record in language-study, college standing, general ability, etc. Naturally, therefore, the experiment throws light on the learning process in general, and not merely on the specific question of method, which it was the initial purpose of the investigation to answer.

Table I shows the results of the first weekly test. It seems to call for separate treatment, because it was given to the class without much explanation of what was required of them. This manner of presentation was intentional. It discovered the native powers of retaining images, and furnished a basis of comparison of subsequent work in which the will to excel played a more important part. The letters in the table represent the members of the class, of whom B, F, and G were men, and the others women. All were seniors in college except G, who was a graduate, C, who was a junior, and H, a sophomore. The first column of figures represents the number of Italian words recalled from the sentences and separate words after an interval of two days. The second column of figures represents the value in per cent. of the translation of the sentences at the same time, while the last column represents the value in per cent. of the translation of the separate words.

TABLE I

	Free Reproduction	Translation of sentences	Translation of words
A	14	86	85
B	11	85	80
C	10	56	85
D	9	63	100
E	8	70	70
F	5	40	90
G	1	40	60
H	0	11	90
I	absent	—	—
J	absent	—	—

One finds here at the outset a considerable correspondence between free reproduction and ability to translate the sentences. G, who was inferior in the power of direct recall to F, and equalled him in the translation of the sentences, shows marked superiority in the later studies, where his maturity and perseverance make themselves felt. The differences between C, D, and E do not call for elaborate comment, but D, as she said, waked up towards the end of the twenty minutes to the fact that a test in memory was in progress, and applied her attention with characteristic energy to the translation. E, as she later recognized, was greatly aided in translation by a special ability to associate the parts of the English equivalent. She wrote, "In translation if I could remember what one or two of the words meant I could recall the translation of the whole sentence." This ability was particularly noticeable in this first exercise, where the seven sentences attempted were translated perfectly.

Table II shows the improvement in free reproduction during the two months the experiment was carried on.

TABLE II

March	1	8	15	22	29	April	5	19	26	Total	Average
A	14	24	47	37	64		52	27	44	339	42·37
B	11	13	30	33	31		42	62	61	283	35·37
C	10	29	—	40	—		—	19	23	121	24·2
D	9	9	12	21	—		82	—	50	129	21·5
E	8	6	8	28	26		27	15	15	133	16.62
F	5	7	12	15	—		17	12	15	83	11.85
G	1	20	20	19	37		43	32	30	202	25·25
H	0	5	16	—	—		—	24	15	60	12.
I	—	36	36	44	56		—	39	48	259	43·16
J	—	19	16	—	—		61	58	44	198	39·6
Total	58	168	197	237	214		270	318	345		
Average	7.2	16.8	21.8	29.6	42.8		38·5	35·3	34·5		

Even these data, limited as they are, serve to show the dependence of progress in language-learning on the improvement in free imagery. How much success in the exercises resulted from conscious efforts to make the images of the Italian more vivid is apparent from the written accounts by the class of their methods of study. A, whose aptitude for this work was marked throughout the experiment reports, "I think my method was almost entirely by association of the Italian in half visual, half auditory imagery with the English in auditory (with a very much smaller degree of visual)." B, who made steady and brilliant progress, was very clear as to how he learned. "In learning the Italian," he wrote, "whenever I could hear the sentences and words spoken, they became fixed in my mind; during the latter part of the experiment, however, I had obtained some idea of the 'sound' of the language, and so just the sight of the words was often enough to fix the sound in my mind." I transcribe the seventh exercise and this student's reproduction of it after an interval of two days.

Morir!sì pura e bella!	Morir!si pura e bella,
Morir per me d'amore—	Morir per me d'amore
Degli anni tuoi nel fiore,	Degli anni tuoi nel fiore,

Fuggir la vita!	Fuggir la vita.
T'avea il cielo per l'amor creata.	T'avea il cielo per l'amor creata,
Ed io t'uccido per averti amata!	Ed io t'uccidopper averti amata.
———	———
Vedi?di morte l'angelo	Vedi?di morte l'angelo
Radiante a noi si appressa—	Radiante a noi si appressa—
Ne adduce eterni gaudii	Ne adduce eterni gaudii
Sovra i suoi vanni d'or,	Sovra i suoi vanni d'or.
Su noi già il ciel dischiudesi—	Su noi gia il ciel dis—
grosso	grosso
dimorare	dimorare
cacio	cacio
zanzara	zanzara
moto	moto
piangere	piangere
curiosità	curiositá
lutto	luto
raggio	raggio
braccio	braccio

On this same occasion all that F could recall were the following unconnected words: nauzaza dimorari, braccio moriri, bella, leggio, amore grosso, moto, vedi, morte, gaudii curiosita, pura.

That such differences exist in the powers of free reproduction of two classmates working under the same general conditions will surprise all perhaps except experienced teachers. One feels that in the learning of foreign language the vividness of the imagery is something that should not be neglected.

F writes, "Visual imagery played the heaviest part in my process of learning Italian." He notices, however, that he moves his lips in learning the exercises, and concludes that motor imagery may have played some part. C reports that all her memory depended on visual imagery. "If I could not recall the place in the sentence and on what part of the page the word was, it was hopeless to try and recall the word." In spite of this consciousness of location it is remarkable that C's memory was rather for detached words. Her exercises were lacking altogether in the continuity that marked the work of the auditory-minded B, already quoted, and that of the motor-minded J, given below.

D says, "When the work was put on the board, I read a sentence several times, and then shut my eyes and repeated it until I could see it clearly in images." She tried for a while writing the words down, "but it did not make much difference, in fact it retarded my memory of them all, for it took more time and made two kinds of images,—printed and handwritten. It is much easier for me to retain one image." Quite in contrast with this experience is that of J, who gives a striking account of her method of learning. "It is almost impossible for me to memorize anything without writing it down,—in fact, it is impossible for me to learn any hard lesson that has to be memorized in any order of ideas, without a pencil in my hand." "The first sets of Italian sentences, which I tried to learn by visualization or by an effort of memory alone, were *entirely new* to me when we were re-examined in them, whereas the others, which I had learned by writing them down, were as old friends." She thinks she could never remember which words follow which. Within the sentence, as the subjoined exercise shows, her memory for order is remarkably good when she writes the work out. Once more speaking of her way of learning things she writes, "The *proportion* of them and the *feeling* of them impress me more than anything else; I can't describe it, but it isn't the *look* of a thing alone."

Quando arriva il treno a Roma?
Viene con me il più presto possibile.
Non feci nessuna attenzione.
Quanto debbo pagare pel servizio?
Come stà?Stà bene?Si, Signora.
Preparatemi un bagno caldo.
E Lei già stato a Venezia?
Il letto non è preparato.
Farò tutti i miei sforzi.
Aspetto risposta per il portatore.

Comme stà?Stà bene?Si, signora.
Preparatemi unbagno caldo.
Faro tutti i miei sforzi.
Quanto debbo pagare pel servizio?
Quando arriva il treno a Roma?
Il letto non è preparato.
Feci non nessuna attenzione.
E lei gia a stato Venezia?
Vieni con me il più possibile presto.
Aspetto risposta per il portatore.

Arrosto
cervello
insalata
uova
frutto
pomidoro
pesce
colazione
cena
riso

uova
cena
colazione
frutto
insalata
cervello
arrosto
riso
pomidoro

This was the sixth exercise, but J had studied only two of the previous sets of sentences and words, and had not done remarkably well in them. This splendid performance, after two twenty-minute lessons in Italian, indicates the value of discovering one's own best method of learning, perhaps previously to any extended work in a new study. J's marked improvement in translation, shown in Tables III and IV further justifies our procedure, which emphasized the importance of gaining a vivid image of the foreign words and sentences.

H, whose record was by no means encouraging, seemed to herself to fail because the circumstances of the recitation made it difficult for her to use the imagery most congenial to her. She is ear-minded, but no drill was given in the foreign sounds, and after the first few exercises no special pains were taken to pronounce the Italian, as the class did not seem to demand it.

E says, "In learning the words and sentences I found that I could learn them better when I would spell them in a whisper so that I could hear them." "I wrote the words also, and spelled and pronounced them as I wrote, and I found this very helpful." G writes, "I tried working on the Italian alone and committing it by rhythm, and auditory, visual, and motor imagery, but I found the method unsatisfactory." "The most satisfactory was to learn the English first and then get the Italian; ask about any particularly hard part as this seemed to fix the words; and then as quickly as I could after class reproduce all I could remember in writing and commit it thoroughly." Another member of the class, I, "learned the exercises by visual and auditory imagery, more easily when the two were combined."

The Tables that follow, III, IV, V, and VI, serve to show how these learners of various types succeeded in learning the translation of the Italian words and sentences, and how their power of retaining the latter compared with that of retaining the former. Table III gives the percentage values of the translation of the sentences made by the class two days after the first sight of each exercise.

TABLE III

									Total	Average
A	86	95	100	100	100	88	100	100	769	96.12
B	85	80	100	100	100	100	100	100	765	95.61
C	56	92	—	90	—	—	95	92	425	85
D	63	78	75	93	—	98	—	100	507	84.5
E	70	95	65	78	81	67	58	95	609	76.12
F	40	60	70	67	—	80	70	90	477	68.14
G	40	72	80	95	100	100	100	100	687	85.87
H	11	50	25	—	—	—	70	90	240	48
I	—	86	60	82	75	—	100	100	503	83.83
J	—	74	60	—	—	95	100	100	429	85.8
Total	451	782	635	705	456	628	793	967		
Average	56.3	78.2	70.5	88.1	91.2	89.7	88.1	96.7		

In conjunction with this must be considered Table IV, which gives the results in percentages of the translation of the words during the first eight weeks of the experiment.

We do not find so marked the tendency to improve in the translation of the words as in the translation of the sentences. The fourth table seems more subject to fluctuations, perhaps because it is sometimes possible to guess the meanings of the

TABLE IV

									Total	Average
A	85	100	100	100	100	88	100	100	773	96.62
B	80	98	90	100	100	100	100	100	768	96
C	85	95	—	95	—	—	80	80	435	87
D	100	85	50	90	—	98	—	100	523	87.16
E	70	95	65	100	60	90	60	60	600	75
F	90	60	50	45	—	100	60	30	435	62.14
G	60	65	60	90	100	100	60	90	625	78.12
H	90	75	40	—	—	—	100	30	335	67
I	—	95	75	90	100	—	100	100	560	80
J	—	75	80	—	—	100	100	100	455	91
Total	660	843	610	710	460	676	760	790		
Average	82.5	84.3	67.7	88.7	92	96.5	84.4	79		

words. Moreover, what is most important for our experiment, on this first translation the averages, both collective and individual, are higher in the fourth table than in the third; *i. e.*, there is greater success in recognizing the words than in recognizing the sentences. If we combine the records for the words and sentences, we find that A, B, C, etc., secured the following percentages respectively: 96, 95, 86, 85, 75, 65, 81, 57, 81, 88.

Four weeks after the eighth exercise, as already stated, all the exercises were resubmitted. The results are recorded below. Table V represents the translation of the sentences, Table VI that of the words.

TABLE V

									Total
A	86	100		95	100	100	100	100	681
B	67	79		65	95	80	100	80	566
C	29	84	—	67	—	—	80	74	334
D	39	54							
E	44	34		50	55	50	55	74	362
F	22	25	30	37	—	57	20	30	221
G	50	62	22	80	90	82	82	78	546
H	34	12	15	—	—	—	50	12	113
I	—	75	78	75	75	—	98	100	501
J	—	71	36	—	—	95	100	50	302

Comparing the totals of Table V with the comparable sums from Table III, we find that the best students most nearly approximated their former record (A even surpassing hers), while the students who had made the poorest records in the first place with the exercises now fell the furthest below their

TABLE VI

									Total
A	90	92		90	100	85	98	100	655
B	85	90		75	90	98	80	55	573
C	34	90		60	—	—	40	60	284
D	90	80							
E	50	71		70	40	70	30	10	341
F	80	50	10	20	—	50	30	20	260
G	60	78	40	40	50	70	25	35	398
H	40	72	40	—	—	—	40	20	212
I	—	65	60	70	70	—	70	70	405
J	—	60	36	—	—	100	55	35	286

own former performances. The following figures represent in percentages the relation of the marks taken on the final test to those taken previously. A—101, B—85, C—78, D—E—64, F—46, G—79, H—47, I—99, J—70. Making a similar comparison of Table VI with Table IV, we find again that the superior students came more nearly to their previous records than did the inferior ones. The following figures represent the relation in percentage of the final test on the words to the result on the first test: A—97, B—84, C—65, D— , E—62, F—59, G—63, H—60, I—72, J—62.

Again, placing together the results of these two comparisons, we have a means of measuring the ability to retain sentences with the ability to retain detached words.

A	101	97
B	85	84
C	78	65
D		
E	64	62
F	46	59
G	79	63
H	47	60
I	99	72
J	70	62

Here there is seen to be an advantage in retaining the sentences except in the case of two students. These were, it is interesting to note, as far as success in learning the exercises is concerned, the two weakest students in the class. The better students recognized expressly the advantages of studying languages by sentences rather than by words. A, in order to learn the detached words, first made sentences of them. On this point B writes, "As to the detached words and the complete sentences or rather ideas, I found it much easier to memorize the latter. At times it was necessary to resort to some purely mechanical method in order to retain the separate words, such methods as arranging them in a sentence (when it really became learning sentences or ideas), arranging them in alphabetical order,'' etc. Still another student, I, writes, ''In learning the separate words, I found, at the time of our review, that I could not recall some of them, while it was not difficult to recall the sentences entire; in other words, I could learn a whole sentence and remember it much better than one isolated word. So were I to learn any new language, I should certainly do so, not by cramming a lot of unrelated words into my brain, but by words connected in meaning in sentences.''

The range of individual differences was as marked a feature of the final test as of the rest of the experiment. Below are given the translations by A and H of the eighth exercise four weeks after it was first presented.

Exercise VIII	A's translation	H's translation
Il treno è in ritardo.	The train is late.	The train is late.
La supplico di non abbandonarmi.	I beg you not to leave me.	
Ha egli scritto qualcosa d'altro?	Has he written anything else?	
Ha avuto la miglior parte.	He has the best of it.	
E superiore alla mia immaginazione.	It is beyond all my imagination.	superior–imagination
Il sole mi dà noia	The sun annoys me.	
Dove c'è una pensione?	Where to find a lodging place.	
Non è questo troppo caro?	Is not this too dear?	
Non avete un libro simile a questo?	Have you not a book like this?	
E questo il suo più recente lavoro?	Is this his most recent work?	
legare	bind	
edizione	edition	edition
ponderato	heavy—deliberate	hesitate
sarta	dressmaker	tailor
mosca	fly	
mano	hand	
lato	side	late
tirare	shoot	talk
molto	much	
pianura	plane	

While A translated all the sentences and all the words with a fair degree of accuracy, H succeeded with only one sentence and one word among the separate words, and that, edizione, one readily guessed. When you consider the various types of imagery, the various methods of study, and the different powers of retention of the group under examination, you realize how complex is the instrument on which the instructor of even a small class attempts to play. Some of these differences are undoubtedly inborn, while others are the result of previous experience.

Swift, in the experiment already referred to, paid special attention to the effect on the learning of Spanish prose composition of previous school work in German and Latin. He recognized an initial advantage, which did not vanish during the limited time the investigation was in progress, on the part of those who had been taught other languages before taking up Spanish. He does not explain this advantage as the effect of language discipline in general, but says, "It cannot be doubted that the substance of information carried over from Latin or German would give beginners in a new foreign language a decided lead over classmates who were receiving their first introduction to work of this sort." The students in my experiment were conscious of the effect of their previous work in language on their ability to learn Italian. A says, "I keep the English equivalent—and the French or Latin, if that is nearer—in mind." She also made use of all the grammar she could construct for herself from the examples. B writes, "Undoubtedly my experience with other languages helped me greatly, especially Latin and French. At times, except for the spelling, it would seem to me that I was translating Latin or French." In C's exercises I frequently found the French equivalent substituted for the Italian word. She was taking a course in French at the time the experiment was in progress. On the other hand H felt the lack of previous experience in language study and she wrote, "The exercises were hard for me at all times because I have never taken much language work, therefore it is impossible for me to see the derivation of the words, or to associate them with other translations." What she felt she lacked, and what the others were conscious of availing themselves of, was naturally what could be described as "substance of information."

Table VII represents the number of years spent in the study of foreign language by the members of the class at high school and college. The grade of work done at college is indicated by the letters a, b, and c. The figures following these letters show the number of semester-courses.

A careful consideration of this table reveals that as far as their experience in the study of foreign language is concerned, the members of the class rank as follows: A, B, J, E, C, G, D, F, I, H. To what extent this order corresponds to that of the excellence of the students in the learning of the Italian exercises we shall see more definitely by and by. In the meantime it is manifest that however important imagery may

TABLE VII

	High School				College			Total
	Greek	Latin	French	German	Latin	French	German	
A	1	4	3		2 a3b1	1 a2	2 a 4	13 yrs.
B		4	1		1 a1b1		4 a11 b3	10
C	some	4		2		2 b4		8-9
D		4		1.5	1 b1c1		2.5 a 4 b1	8
E		3				2 a2c2	4 b 6c2	9
F	1	4					2 b 2c2	7
G	1	4		1.5	1 b1c1		1.5 a2b1	9
H		2		1.5			1.5 b3	5
I		4					1 b 6	5
J		2.5		2	2.5 a3b2c1		2 a 2b2	9

be in the learning process, apperception is a factor that cannot be neglected. How far definiteness of imagery depends upon the apperception this is not the place to discuss. I, who is a mature student, knew how to help out her learning by conscious associations; her mind "was always seeking for some comparison with something that had been previously assimilated." She concludes that her "natural method of memorizing is the *logical* one." G likewise helped out his rather poor imagery by learning the translation and consciously associating the Italian with the English. He made it a point, as we have seen, to ask about sentences that he found it hard to memorize, and to thus form associations by little discussions in class. E was also very conscious of her associative processes. She writes, "The method that I found best in memorizing the Italian was in relating the Italian meaning to the English, and by writing down the Italian and by spelling it out as I wrote it, so that I could hear the sound of the letters and also see the words."

The general college records, inclusive of the foreign language credits, of the members of the class, are given in Table VIII. The figures represent the number of examinations passed, or rather, the number of half-yearly courses taken. The letters at the heads of the column are the grades obtained.

As already stated, C was a junior, G a graduate, and H a sophomore. It is fair to say that the following represents the order of these students as far as their college record is concerned: A, B, J, I, D, G, C, E, F, H. That the order established by their college record is that of their general ability I should hesitate to say. Qualitative rather than quantitative differences are uppermost in mind in making a general comparison of the members of the class. For the grades that

TABLE VIII

	A	B	C
A	38	7	
B	23	13	1
C	4	22	5
D	12	27	3
E	2	33	11
F	1	33	7
G	11	32	3
H		10	10
I	13	33	
J	18	19	6

they received in the course in experimental pedagogy, the writing of a thesis rather than the passing of an examination was the decisive thing. As the choice of a subject and the making of the investigation were left largely to the student in each case, their grading might be supposed to afford a clew to their general intelligence and executive ability. I find that the grades, represented this time by numbers, were as follows: A—1, B—1, C—4, D—1, E—3, F—3, G—1, H—2, I—1, J—1. Nothing, therefore, in the standing finally secured by these students in this course would warrant one in taking exception to the grading obtained in their general college record. Of course in speaking of general ability one naturally asks whether effort and will-power do not at times offset native aptitude. The presence of a steady purpose in some cases and its absence in others cannot well be overlooked. Where the purpose was strong, however, it is noticeable that it led to new methods of study, more conscious associations, and more vivid imagery. The student who felt the lack of motive to learn the exercises,—which lack certainly gave a touch of artificiality to our work but did not lessen its likeness to the usual school drudgery,—failed to find a sufficient incentive to make the preparation of a good thesis worth while, and the college record shows that the impending final examination failed to arouse to energy the latent power one continued to have faith in. The better students good-naturedly took it for granted that the play was worth the pains, or did the work as one of the most brilliant expressed it, "simply from the habit of doing what we are told." Whether the docile or lethargic promises more for the future we shall not now take time to discuss.

A steady effort was made to render the exercises interesting as far as the nature of the work permitted. The introduction of the quotation from Dante in the fifth exercise, and the more difficult song from Aïda in the seventh exercise, were intended to relieve the monotony, or rather to anticipate it. The effect can be traced in the tables. As a rule, the short sentences were such as might be of value to travellers in Italy. One of the members of the class writes, "Sometimes, if there was presented a nice little conversational sentence, I would say it in Italian to my friends—as: Che mi consigliate di fare? Such remained longer by me than the rest." B says on this point, "Some lessons, furthermore, were more readily memorized than others, such, for example, as the selection from the opera, and certain common but very useful sentences, as Il treno è in ritardo, etc. Here it is undoubtedly true that interest plays a very important part in my learning process. Where this feature was lacking, it was necessary to resort to will power; this was only necessary, however, in two or three cases and then, I believe, interest failed solely from physiological reasons. I found it quite possible to memorize the Italian of every lesson, but the less interesting it was, the greater effort it required." "Of course the shortness of the exercises prevented the interest from flagging." A says, "I doubt whether I could have studied much longer than twenty minutes at a time as hard as I did." This student also notes, "I remember some of the unusual constructions best, because I paid most attention to them. I forgot some of the most natural words and constructions, because they were so natural that I did not pay particular attention to them."

In Table IX a summary is made of the main results of this investigation. By it we are enabled to compare the students at a glance in the following respects: general college record (C. R.), grade in experimental pedagogy determined largely by a thesis (T.), free imagery of the Italian on the first trial of all (I.), average record in free reproduction after a two days' interval (A. R.), translation of the sentences after a two days' interval (T. S.), translation of the words after a two days' interval (T. W.), retention of the sentences (R. S.), retention of the words (R. W.), experience in foreign language study (F. L.). For the students' grades in the thesis work only four numbers were used; except in this instance the figures represent the order of excellence in the class.

The investigation increases my confidence in the value of the general college record, and leads me to believe that a study such as this is capable of yielding simple means for determining general ability. The degree of vividness of the imagery, whether it be visual, motor, auditory, or of a mixed type, is a factor of the first importance in the learning process. Subsequent experiment with the exclusive use of this or that type of imagery will determine whether with a heterogeneous class a better average result can be obtained than in this experiment, in which we aimed at reproducing the classroom conditions as nearly as possible, under the limitations already mentioned.

TABLE IX

	C. R.	T.	I.	A. R.	T. S.	T. W.	R. S.	R. W.	F. L.
A	1	1	1	2	1	1	1	1	1
B	2	1	2	4	2	2	3	2	2
C	7	4	3	6	5	5	5	4	5
D	5	1	4	7	6	4			7
E	8	3	5	8	8	8	7	6	4
F	9	3	6	9	9	10	9	8	8
G	6	1	7	5	3	7	4	5	6
H	10	2	8	10	10	9	8	7	10
I	4	1		1	7	6	2	3	9
J	3	1		3	4	3	6	6	3

One naturally asks in conclusion what hints for actual classroom work can be gathered from a study of this sort. Would it be wise for the teacher of foreign languages to cast aside dry vocabularies, and to teach words only in their connections? Would it be worth while to construct interesting dictionaries, in which no word would be given without a valuable example of its use? Should we, before plunging into the work of teaching a foreign language, attempt to find out something of the previous experience of the student in language study, and of his characteristic methods of learning? Should we limit the length of the recitation to half an hour? Should the recitation be so conducted as to allow full liberty to individual differences in the learning process? To some of these questions we feel prepared to give a decided answer. For example, our study leads us to sympathize fully with the humorous appeal, in reference to method of study, of one of the best students: "Give me liberty or give me death!" Most of these questions, however, will require for their solution the joint consideration of many theorists and many practical instructors. Meantime it is encouraging to note that the matter of classroom methods is being recognized as accessible to a treatment more promising of definite results than that heretofore employed. A great gain would be made for scientific pedagogy if trained teachers of foreign language could be led more generally to undertake experiments to answer some of the problems that confront them, or even if they could be induced to put on record their more striking successes and the exact procedure by which obtained. At the same time the aim of experimental pedagogy in this as in other fields must be not to ignore nor seek to upset the work of the practical teacher, but to submit data for his consideration, to afford a scientific basis for pedagogical skill, and so far as possible to make of general avail the triumphs of pedagogical tact.

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COMMUNICATION

By Frank A. Manny, Kalamazoo, Michigan

"Do not think the youth has no force, because he cannot speak to you and to me. Hark! in the next room his voice is sufficiently clear and emphatic. It seems he knows how to speak to his contemporaries."[1]

Compared to many European class rooms the American teacher and student have made considerable advance in establishing lines of communication. It is hard for some German teachers to understand that instructor and pupil can be "contemporaries" in any real sense. I recall the look of astonishment upon the faces of good men and boys in that land when after some sturdy boy had brought me my coat and helped me put it on I would turn to assist him with his coat. Yet our advance in these matters is slow. One can still find schools in which those tools which have formed so great a part in the progress of civilization—I refer to mutual aid and communication—are the cardinal sins.

In our interest in developing the constructive work in material of three dimensions and the representative and creative opportunities in drawing and painting, we have not always taken account of the extent to which language can become a means of communication in a creative and active sense. The newer developments in music, especially in primary classes, have reacted upon the language recitations. In some schools there is co-operation between these departments, and visitors who are concerned with English problems are directed to spend a part of their time in certain music classes because there they will find some of the most effective constructive work in gaining control of the mother tongue.

Those who have had experience with the more substantial experiments in correspondence study have often remarked on the opportunities for communication developed in that department, so that in many cases students have found themselves able to do more responsible work in correspondence with an efficient teacher than had seemed possible in the classroom. Here, as elsewhere, it is possible that the class instruction can become a more adequate social tool by larger inclusions and the use of suggestions from these newer fields may help in the advance.

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[1] Emerson: Self Reliance.

I have no fault to find with our usual tools in so far as they serve their purpose. The usual recitation methods—reviews, simple tests, formal examinations, topics, questions and answers, students' inquiries, theses, dissertations, conferences, etc., establish sufficient communication in a large number of instances. The laboratory idea carries over more and more into a wider range of interests and the development of oral speech in play and dramatic activities promises more efficiency. One of the significant factors in the better schools of the day is the extent to which it seems possible to carry regard for the individual without danger of rendering him less useful in society. Professor Cooley in his latest book has shown that while modern society makes it increasingly difficult to preserve the individuality that came from isolation, it offers constantly greater opportunities for that higher individuality that can come only through choice. The elective system has left a trail of absurdities and waste. Yet its tendency has been decidedly for progress. We have been slow to appreciate that its significance in earlier years will be found to be as great as it now is in the secondary and higher schools and, further, that some of its greatest achievements will be in the field of method and operation. It has been costly to learn what it can afford us in subject matter, but its larger usefulness may well be in giving to individual students a wider range of means of communication, through which the needed habits and conventions of life can be organized, with reference to social responsibility, without so great sacrifice as is sometimes made of initiative and individuality.

During the past fifteen years my work first as a teacher of English, and later of education, has led me to work upon this problem in my own classes ranging through the high school, normal school and the graduate department in two universities. My work as supervisor, superintendent and adviser of several schools has given me further occasion to see many aspects of the problem in the kindergarten and the elementary school.

A valuable study could be made of the improved tools that have come into our English classes through the activity of a few live men in certain universities. I have used many of these but found myself in need of some means that might serve as a centre and afford continuity. The device that served best is what students call "the reading list," or, better, "the weekly communication." On a certain day of each week each student hands in a paper on which he is asked to note the references to the reading he has done during the preceding week. I have found it an advantage to have this a regular exercise as it then rests on a basis of habit and can be performed economically. While it is thus a definite requirement the required element is placed at a minimum and can be met by the use of a very few minutes' time. Upon this basis of regularity I find that an interesting superstructure of voluntary communication grows. There are some students who never get beyond the simple necessities, but usually the list of references in the particular subject comes to include material in other courses and relationships are suggested and pointed out by the student,—quotations are copied and the habit of abstracting and outlining is developed. Further than this there is a tendency to make this exercise an occasion for attending to the more mechanical questions which usually take class time or involve long waiting for conference, or more often are let go at much loss because it would require so much effort to bring them to the instructor's attention.

The communication would be well worth while if it accomplished nothing more than the exercise it gives in discrimination and in bringing to my attention the types of material which interest particular students, together with its function as a periodical clearing house. But further than this it has its best service in the use that is made of it to raise problems and to record impressions. Most young people like to write out their thoughts. For many the diary or journal is a real means of catharsis, but often a similar writing has greater value if it is known that it will have a sympathetic reader who will briefly comment and suggest relationships and connections. Naturally each week presents a large amount of material which can be marked for class use.

The frankness of statement and the directness of application oftentimes bring out erroneous views and serve to keep the instructor in touch with the actual muddy current of thought in the student's mind as well as his own clearer current that has been clarified by years of study. I have found it desirable to keep in a closet a "Lest we forget" shelf of books to which I turn from time to time in order to have a better understanding of the contents of older students' minds. There are curious cross currents to be found in these minds and canals side by side which are quite unconscious of each other's existence. I was once walking with an earnest young man of twenty-three who had taught two years. At this time he was taking less than usual work in order that he might have more time for reading. To my surprise I found that this reading was in the works of Horatio Alger, Junior! Yet following up a clue which a communication had given me I found that he had made a list of important events in his life and one of these was the reading of Emerson's Compensation, which he discussed with intelligence. I had just read a barely passable examination paper by him, but in his communication there came up a reference to impeding habits which showed a comprehension of the subject far beyond that evidenced by the average student, and a sensible application of the idea to opposition to spelling reform and other like movements.

Following are a few extracts from the weekly communications representing the work of students in a normal school:

> "During vacation I read about one quarter as much as I usually do during vacations and tried to observe more. I read enough of Francke's History of German literature and Scotts' Social Education to get their aim, point of view and main or general plan of treatment."
>
> "I read some extracts from Tom Sawyer. Had read it some years ago. Wanted to see if I saw it in a different light. Think I found it nearly as interesting, but the interest lay not in the adventures of Tom but the causes and interests that brought them about.
>
> "I tried one of Alger's books the same way. Think they are too much exaggerated to find even a study in them.
>
> "I thought I would see what I could make out of some of Shakespeare's works. Can still see many places where there might be many meanings. But I think I can get down to the essence of the work a great deal better.
>
> "I am studying the life and letters of Huxley. From what I read I think that he made himself a factor in changing his environment.
>
> "I try to keep in mind the general contents of several good periodicals—as the Survey, Manual Training Magazine, etc."

> "I. My work this week has been what I call a clearing up. I have been writing note books for all my subjects, getting points I did not understand cleared up, and trying to get my work into some sort of shape for the summer term. Outside of this I have done no work.
>
> "II. Speaking of woman's rights I noticed the following in a paper this morning: 'After the style of hats women are wearing this spring, they still claim that they do not have their rights.' Looks to me very inconsequential!"

> "During this term of Psychology of Occupations I have thought a great deal more about my course of study than I ever had before. Before I came to school I had heard only these arguments for Domestic Science, that it teaches a girl to be a home-maker and if she must depend upon herself, teaching it is a good way of earning money. Now I have a little broader view of it. It seems to me that the whole problem is this: In many homes to-day, women are putting the household industries into hands of professionals and are trying to do bigger things out in the world; in many other homes women are trying or pretending to make homes and they do not know how, so that improper nourishment, unhealthful conditions and many other bad things are the result. There are two ways of meeting the situation, either of putting all household duties into skilled hands, taking the children into the schools and giving them there all the things which are or were given in the best homes; or of teaching home-making in the schools, in clubs and through the press so that the present or more particularly the rising generations of women will know how and will be home-makers. In the former case,

I can see no reason for putting Domestic Science and Art in the public schools, in the latter case there is need for it in every school.

"In the Home Journal of Economics there is an article, 'A Campaign for Home Making.' The author describes the conditions of many homes, the lack of knowledge of food, clothing, and the care of children, and says: 'Is there a more fruitful field for professional teachers of home-making than this?' Do I have the right idea of it?

"*An after thought.* Domestic Science may at first look to be too materialistic, too much stress being put upon the external and physical rather than on the internal, but this is not the true meaning. It is a necesary step to higher things.

"'Home Economics stands for the freedom of the home from the dominance of things and their due subordination to ideals.'"

"I do not agree with this report (Committee of fifteen) on the methods of teaching arithmetic. I have noticed that pupils do better work if not allowed to use texts until about the sixth grade. I get much more and better ideas out of the Michigan Manual than I do this report."

"I. Was Pestalozzi a transcendentalist? In his New Year's Address of 1809, he says: 'The divine nature which is in you is counted holy in you. You are among us what the divine nature within you and without you summon you to be. We oppose no vile force against your gifts or your tendencies; we constrain them not,—we only develop them. . . . What I seek is to elevate human nature to its highest, its noblest; and this I seek to do by love. Only in the holy power of love do I recognize the basis of the development of my race to whatever of the divine and eternal within its nature.'

"What I understand he means by 'elevate' is to open new things to the individual as he grows and is ready for them. I believe in Pestalozzi.

"II. Compulsory Education laws of the State of Michigan, 1907.

"III. I also believe in Froebel, when he says, 'In all things there lives and reigns an eternal law. . . . This all controlling law is necessarily based on an all pervading, energetic, living, self-conscious, and hence eternal unity. . . . This unity is God.'"

"'Education consists in leading man to . . . pure and unsullied consciousness and free representation of the inner law of Divine Unity, and in teaching him ways and means thereto.'

"I think Misawa's treatment of Pestalozzi and Froebel is excellent. (Modern Educators and their Ideals, by Tadasu Misawa, Ph. D.—D. Appleton, N. Y.)"

"I. 'School and Society.'—Dewey. (Problems worked out—to make school not isolated from home and society but in co-operation with them. His four problems are worth remembering.)

"II. 'Social Education.'—Scott. (Good. Have not done much reading in this.)

"III. 'Little Journeys to Homes of Great Teachers — Booker T. Washington.' — Elbert Hubbard. (A very interesting account of Booker T. Washington's boyhood and work at Tuskegee.)

"IV. Carlton, ch. 12. (A very fine account of continuation schools and industrial education. Worked out very well.)

"V. Misawa. 1. Table of Contents. 2. Preface. (I consider this one of the best books on modern education. A well organized work and interesting.)

"VI. Life of John Stuart Mill, from Rand's 'Modern Philosophers.' 'Elimination is probably as necessary for the true advancement of science and humanity as accumulation.' (I find that Mill was an empiricist, individualist and associationalist. I cannot find an adequate definition or meaning for the term associationalist. Does it mean utilitarian? Does it hold something of the idea contained in the quotation before? Elimination in so far as the thing eliminated is useful and corresponds with previous experience?)"

"I. 'Education of the Indian,' Vol. II, Butler. 'Education in United States.' (I had never realized before that so much and so great work had been done for the Indians. It is certainly a rich field for any one concerned with the race problem to-day. It is just as interesting as the negro question, except that public opinion is not so strongly against the Indian.)

"II. 'School Management,' Dutton. (Shall take time some day to read this through carefully. It is a book every teacher should own. Have read greater part of first half.)

"III. To show or to illustrate the relation of school to society. I found this statement in Dutton's 'School Management': 'The school exists to create a better social life.'

"IV. 'The problem is not one of correlation, but of differentiation,' Dewey. There is much the same thought and same idea in this as in the statement, 'Elimination is probably as necessary for the true advancement of science and humanity as accumulation.' The one contains the idea of distinction, the other of extinction; discrimination and separation?"

"Chapts. I. and II. 'School and Child,' Dewey. A portion of 'The Young Malefactor,' Travis."

"'Plain facts about Public Schools.' Sam. Orth in Atlantic Monthly, 3, 09. This was a very good article. If the schools are really in this bad condition why not remedy them? After all, is society civilized? Look at the school system, at the 400, at the social relations. To me it seems doubtful. Man is not yet in his own and will not be for years to come."

"This week has been a great deal of going over work for me. I have gone over Patten and read much of it. I read some in Travis's 'Young Malefactor.' The little Michigan bulletin of laws was gone over. I read some of Dopp. 'The Teachers College Record' was new to me and in it I read the material by MacVannel on the educational theories of Herbart and Froebel. Besides this and some magazine work I have had considerable reference work to do in cooking and sewing."

"I have been following up references on special sense of pain which involved reading in Wundt, Titchener, Groos, Baldwin, King, Gulick and others. I doubted at the beginning of the reference work that there was such a sense—as many of the class do yet."

"Day, Squire Phin. A book to read for enjoyment. I have made a determination to read at least one such book or as much as I have time for each week. Too much for one week?"

"The discussion in class, the other day, of the Sunday ball game was a shock. Without attempting to reason it out or even to think it over, I have always hurriedly thought, 'Of course it is not right.' It fairly took my breath away then to have one of the girls come out and declare it a good thing. Most of all her reasoning was such that I found it impossible not to agree to it as a theory or principle, and yet it is on principle that it is to be opposed!"

I find it impossible to include extracts from some of the most effective material because it is written in so intimate a manner as to lose its significance when isolated. I trust, however, that this statement will serve to show the serviceableness of this tool. I am constantly impressed by the results it aids in bringing about by relating one week's work, or one year's work to that of another. There is a continuity established which is an important factor in gaining effective control of material and processes. I find frequent references to problems raised by the instructor or by students in other terms or courses. Again, a new point of view will suddenly appear and a note will be found sometimes in the midst of an examination paper, as, "I see this matter of Sophie's education [in Emile] in a new light, and will write this out in my next communication after I have had time to think it through."

HER LITTLE GIRL

By **Harry Preble Swett**, Franklin High School, Franklin, N. H.

The following is an account of an imaginary playmate that had a continuous development of some ten months, and an existence of over two years. The child, in whose imagination this playmate lived, is now a being of flesh and blood, who may be designated by the colorless name of C. The imaginary companion has always been called by C her Little Girl, and no other name seems appropriate. The facts, here recorded, were noted at the time they occurred, and are as accurate as the writer's personal equation has made possible.

This imaginary child is associated, more prominently, with C's moral development, and allows an insight into the mental struggles of a child learning to control desires in the effort to live rationally. Accordingly, I shall give, briefly, along with the biography of the Little Girl, some of the steps in C's mental development, which have an ethical significance.

At the time when the Little Girl was first noticed, C was nearly three years and eight months old. The Little Girl was, at first, simply an imaginary playmate to talk with, and to react to, in many ways, as if a real companion. She was present a good deal of the time for a month, when I tried to get a description of her characteristics. All that I could then learn of the Little Girl was that C regarded her as another child, who had C's own name.

For some time before this, C had played with imaginary objects, dealing with them with precise reactions. For instance, four months before the Little Girl appeared, C imagined that she had a piece of soap, a cloth, some water, a toothpick and some cotton, all of which she had seen her mother use for her little sister, three years younger than herself. She had nothing with which to represent these objects, and she acted as if each one were real; and I had to act in like manner, in order not to spoil the play.

A month before the Little Girl was first seen, when C was by herself, she imagined that she was in the presence of a little boy, with whom she frequently played. She spoke the boy's name, told him to do various things, and passed him imaginary objects, as if he were there to take them.

This, indeed, was the way C played with the Little Girl for two and a half months, without there being any noticeable developments. At this later time, C was sitting on the floor talking. I heard this: "Everybody is bad; R is bad; A is bad." I turned and asked her to whom she was talking. She said, simply: "My Little Girl."

C was then three years and ten months old, and, as the conversation shows, had some positive knowledge of moral action. Some other developments that she had reached by this time, which have an ethical bearing, may be mentioned at this point.

I find that she had developed a fairly good sense of the passage of time, but lacked anything like accuracy. For a past day she would say, "Another day." For several nights back, she used this expression: "Last night and last night and last night." For more precise time, she used such expressions as "six old," or "months old," for the age of a child. For the time of day, she said it was "half-past minutes."

This fact, that the realization of time is preliminary to any high moral development, is significant, in view of the opinion of those ethical philosophers who consider that our moral nature is inseparably involved in the form of the human mind, which places everything in a temporal setting.

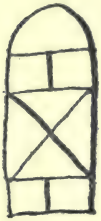
At this age, also, C often had a feeling akin to virtuousness, which was aroused by particular acts on her part, or on the part of others. This would be indicated by such a remark as, "Mama is good to give me that." This feeling is considerably more advanced than the indefinite feeling of attraction, or repulsion, which is consciously realized earlier than this period.

She was able to perform the superior mental act of giving a definition of terms. For instance, the word *serve* was used, and C seemed to understand its use. She was asked what it meant, and she replied: "Oh, to give people something to eat." (Age: 3 years 5 months.)

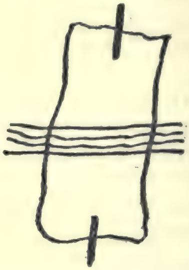
By this time, also, she realized that she was willful and did not exercise much self-restraint. When asked why she did acts that she knew she ought not to do, her answers were like this: "I want to," or, "I want to be naughty." (3 years 6 months.)

She had sufficient command of her imagination to allow her to express herself by drawing, with some success at form. At the age of 3 years 6½ months she outlined, from memory, on the sidewalk, her first successful hopscotch. (See next page.)

A week after the conversation with the Little Girl on human depravity, C was helping her mother take grapes off the stems, when she made this confidential remark: "My Little Girl wanted me to put the stems in with the grapes, but I



My model



C's copy

would n't." The suggestion, however, was too alluring to resist, for she soon put in many of the stems!

Here we have a moral drama. Impulse, in the form of a tempter, is victorious; but not without a struggle. The Little Girl is like the Homeric deity, who puts thoughts into the minds of the heroes. One passage is suggestive; it reads, in effect, "A god put it into his mind, or else he thought it of himself."

Nearly two weeks after this failure to resist the little tempter, C talked with her mother concerning the Little Girl. She said that her Little Girl ran away down the street, and that she would have to tie her. The Little Girl, here, is more objective than in the preceding instance, and does not have so much significance, but there seems to be an indication that C was rising a little above her desires. The conversation clearly shows that C had a good realization of a moral situation.

The Little Girl in this case was in danger of punishment, but she was not always the unfortunate one. When C was within two weeks of being four years old, she was taken down from the table, for misbehavior, and placed upon a couch in another room. Somewhat later, she began to kick, squirm, and scream, as if in great distress. Her mother went to her side and was told that the Little Girl was slapping her legs. C was immediately freed from this punishment, and she returned to the table in a sweet temper.

This castigation by the Little Girl came after the mother's punishment. C had lost her attitude of disobedience when the Little Girl began to cause the trouble. It was like a twinge, or, rather, a blow of conscience. Socrates's attendant deity was less vigorous.

The following morning the Little Girl appeared again. C was allowed to get into bed with her mother and father, but she moved about in an undesirable manner, in spite of expostulations from her elders. Finally, she displayed an entirely different attitude, and began to squeal and kick. Her Little Girl was hitting her legs! C became pleasant almost immediately, and soon asked this question: "I wasn't naughty, when she was hitting my legs, was I?"

This is a drama that represents an internal struggle, with a well earned, though tardy victory.

These were typical performances of the Little Girl, when her activity was most marked. Some other of C's acts, at this period of moral struggle, serve to indicate more fully her mental condition. When she was three years and nine months old, two and a half months before the first chastisement by the Little Girl, C told her first complete falsehood, which was worked out in detail. Truth would have no meaning, were the false impossible. If a person did not have the ability to realize when a thought was inconsistent with one's larger consciousnesss, conscience would have no sphere of activity; indeed, no high type of mental life would be possible. Right and wrong, choice and decision, would be terms of little significance to a being that could not be false.

Some two weeks before this falsehood, her sensitiveness was prominent. If she cried, unnecessarily, she objected to having an uncle of hers look at her. She also showed much uneasiness at my approach, when she was doing something unusual, although the act itself might be of very slight consequence.

Also, a sense of personal individuality, a concept fundamental in ethics, seemed to be growing strong. C remarked to her mother (3 years 10 months): "Where did C D (her full name) come from?" She was told that she grew. C asked again: "Did I grow in this house?" She was told that she did. C continued: "Did I grow in the walls?" The answer is not recorded. She went on by asking whether the postman would bring another C D, if she were not there. She was told that the postman did not bring her little sister. But C was not to be turned aside by unessentials, and she persisted: "Would there be another C D?"

To return to the Little Girl, who could be mischievous: C was in the yard crying out as if in great fear and pain. Investigation was made, and it was discovered that the Little Girl was throwing stones at her. She was told to stop her actions, and peace was restored at once.

When C was within three days of being four years old, this episode occurred: We were about to begin supper, when C said that her Little Girl was going to put her down from the table. As usual, C asked to be released from this danger. We asked the cause, and C said that she herself was naughty; she wanted to take a piece of bread that her mama did not wish her to take. It seemed that she had been debating about reaching to the bread plate, and the thought came that she ought not to. With that, the Little Girl had a chance, and started to put her from the table.

This was a still greater victory for C. She had made no overt act, and had not attempted one, and she was not advised by any person to restrain herself. But the conflict within herself was considerable.

Otherwise, she seemed to be getting a fuller realization of the meaning of permission; for she was overheard to call to a child across the street to come over, sometime, when her mother would let her.

The Little Girl seemed to be making a birthday visit; for, on the same day when, in imagination, C was nearly removed from the table, her mother reported this conversation as C was about to have her bath: "Mama, my Little Girl is playing in the water." (More excitedly.) "She is getting in with her clothes on." (Greater excitement.) "She is getting drowned."

C had often been restrained from beginning as the Little Girl did.

Again, on this same day, C remarked to her mother: "I have a little friend that was playing with matches. I told her not to, but she did, and she got all burned up, and I had to put her in the stove." Her mother: "That was too bad." C (with indifference): "Oh, another one came along and asked me if I didn't want her to be my friend."

This friend was not, identically, the Little Girl. The intimacy is lacking, but, otherwise, there is little difference. I am inclined to think, though, that this is the first instance of C's release from the thraldom of the Little Girl. From this time on, the Little Girl appeared with less frequency, and C played more with dolls for company. Still, the Little Girl made many visits.

Two weeks after the accident with matches, C woke crying, early in the morning. She said that her Little Girl was slapping her in the face. As I stood beside the bed, she cried out: "She is doing it now; tell her to stop." At the requested suggestion, the Little Girl, as usual, stopped slapping. C was quiet immediately, and was ready for sleep again.

About this time, C was apparently conscious of dreams of another sort. She had learned the word, and talked of dreams. Some of her accounts were very dreamlike, but it was difficult to say, in some cases, whether the dreams were experienced when she was awake or asleep.

During the next two months, the Little Girl changed greatly: from *one*, she was transformed into *many*. C was frequently in the company of a bevy of them, sometimes good, and sometimes bad. This certainly indicates the dissipation of the power of the Little Girl. C, also, had more control over her fancy; for, this company of little playmates she managed much as she pleased, and frequently conjured up a group at will. After waking in the morning, and after going to bed, she often said there were a "lot of little girls" bothering her. These could aways be removed by some one's coaxing or driving them from the room. This was much like a game, and they usually bothered her no more than she chose to have them.

At this time of the dissipation of the Little Girl, C showed ability to govern her desires in other ways; and with this ability, arose a consciousness of merit, which was of considerable definiteness. Merit, it will be noticed, is another ethical concept of importance. This conversation occurred one Sunday: On the way to church, she saw some chalk marks, made by a child, on a telephone post. She said that she would not do that—she "knew better" than to do it. Further on, she told some persons that she would not talk in church—she knew better. Twice more, before she returned home, she used the same expression.

The many girls would seem to indicate that C's social consciousness was growing. Of this there is other evidence. She began to ask her real playmates whether they liked her. She picked up the word *mad* (angry) and used it with understanding. She thought that objects ought to be personal, and was troubled over their inertness. She definitely asked, one day, "Why aren't everything people?" The next day she repeated the query in similar words: "Why isn't everything alive?"

The transformation of the Little Girl into an imaginary society of little girls, at a time when C's social consciousness was expanding, is otherwise interesting, psychologically, as bearing on the fact, that even our social world is our own mental construction, just as our moral struggles are all our own.

That C's personal moral struggles in self-control and obedience should be followed by a higher social development is, again, significant; because righteousness, for its activity, requires a social field.

It was at this time, also, when the little girls were many, that C learned the use of rules for games. She knew some of the rules for hopscotch, for example, and tried to apply them. The "one and the many" are necessary for the formation of general principles, which rules, of course, are.

The importance of general principles in the highest type of moral action is emphasized in Kant's theory of ethics. His categorical imperative is a rule for generalizing particular acts.

C made much progress in introspection. She used such expressions as these: "I have something on my mind." If she forgot what she planned to say, she remarked: "I had something on my mind, and I don't know what it was." She also came to realize a difference between the process of thinking, the act of thinking about some particular thing, and that of recalling an object from memory. She distinguished, too, between a temporary feeling—as when cross with her mother—and a more permanent disposition. This latter discrimination indicates a considerable ability to apply a standard in determining the value of feelings.

These last remarks have followed C up to the time she was four years and nine months old. The Little Girl, however, sometimes came back alone. When C was about four and a half years old, she stood watching the hanging of a hammock. It was partly in position, when she remarked in derision: "My Little Girl wants to get in it now."

By the time C was five years old, the visits of the Little Girl, or of the little girls, were very seldom. But while I have been writing this paper, one of those rare visitations has occurred. C is now nearly six years old. She stood in front of an oil stove, in active meditation, twisting an umbrella, the handle of which she was pointing toward the fire. While still in this position, she said to her mother: "My Little Girl told me to put the cloth of this umbrella in the flame of the fire, and throw it on the floor, and burn the house up, and I would n't do it."

Both C and the Little Girl, here, seem much as they did two years ago. And why should they not? There is an ethical standard that C has not reached, that of perfection, and she sometimes is guilty of lapses, even when she does "know better."

In this particular case, however, owing either to the greatness of the consequences, or to the presence of another person in the room with her, she resisted the temptation. So, it may be, a commentary from Milton would be as appropriate as the preceding one:

> "Evil into the mind of God or man
> May come and go, so unapproved, and leave
> No spot or blame behind."

MEDICAL INSPECTION IN TWO WORCESTER SCHOOLS

By George E. Emery, M.D.

In 1906 a bill was passed by the Massachusetts Legislature which became a law on the first day of September, 1906. It provides that every city and town shall appoint one or more school physicians who "shall make a proper examination and diagnosis of all children referred to him . . . and such further examination of teachers, janitors and school buildings as in his opinion the protection of the health of the pupils may require."

There must be referred to the school physician all pupils who have been absent on account of illness, unless they bring a certificate from the Board of Health, also those who have been absent from some unknown cause. All pupils showing signs of ill health as well as those suffering from infection or contagious disease must be referred to the physician.

Each pupil in the public schools must be "separately and carefully tested and examined at least once in every school year to ascertain whether he is suffering from defective sight or hearing or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child, or to secure the best educational results."

Notice of any such defect or disability requiring treatment must be sent to the parent or guardian of the child.

Fifteen inspectors were appointed in Worcester by the Board of Health and began work in October, 1906.

Our duties as outlined by Dr. Clark, then Chairman of the Board of Health, were to inspect such children as were referred to us by the teachers, and make weekly reports of such inspection.

At first the movement was not looked upon with great favor by all the teachers, but I was more fortunate than some others in receiving the hearty co-operation of the teachers with whom I came in contact.

At first all pupils who had been absent were referred to me, and for a few days I had a varied assortment of excuses offered, some about as follows: "Stayed at home to have his shoes repaired," "Stayed at home to mind the baby," "Went to a funeral."

And there were many others of equal interest from a medical standpoint. A prompt and vigorous protest from Mr. Coffey to the School Department soon brought that to an end. The other inspectors had about the same experience at first.

After inspection had been well started I found many pupils referred to me on account of sore throat. Some were found to be harboring lice in their hair, I asked to have all such pupils sent to the office for inspection. A few came from each room, but many teachers objected to making the preliminary inspection and very little was accomplished, except as I discovered the condition when the child was referred to me for other reasons. Frequently in passing through the school yard at recess time I have seen pupils with crusts of impetigo as large as a cent on their faces.

How teachers can come in contact with these pupils as well as those whose hair is covered with nits and not see their condition is beyond my comprehension.

With the approval of the Board of Health I asked permission to examine all the pupils in two schools with the idea of stamping out pediculosis if possible. My request was not granted, so I had to fall back upon the aid of the teachers and such opportunities as chance threw in my way when examining pupils for other reasons.

One inspector who went ahead in spite of opposition has succeeded in cleaning up his school; and those who opposed him now say they see a decided improvement in the general morale of the school. The pupils are cleaner and seem to take some pride in themseives.

Last spring Dr. Trowbridge, Chairman of the Board of Health, announced that we should be expected to make a general and thorough inspection of all pupils. The teachers were beginning to realize the good which was being accomplished and some of them were even anxious for the inspection to take place. This showed a decided increase of interest in the work. Among the pupils sent for examination after being absent, a number of cases of contagious diseases have been found:—scarlet fever, measles, whooping cough, diphtheria, chicken pox, and a few cases of trachoma.

I have no doubt serious epidemics have been averted by the systematic inspection of such pupils. One pupil at Harlow St. School was excluded because of sore throat. A week later I met him on the way to school and noticed that he was beginning to desquamate. I took him home and from his mother learned of two other cases which were reported to the Board of Health. Dr. Clark followed them up and found a third case. These were all mild and the patients going about their business while desquamating.

About the first of October of this year blanks were furnished by the Board of Health on which to record our findings and a systematic inspection of all the pupils was begun. The tests for sight and hearing are conducted by the teachers, but from all I can learn about these tests they are by no means complete and many of the record cards show normal vision when serious defects are really present.

As an illustration one principal told me of a boy who passed the test and was able to read all the letters readily, but always held his head to one side when reading because otherwise the letters ran together. On inquiry I find there is no test card for astigmatism. Judging by the small proportion of pupils found to have defective vision in my schools compared to the findings in other places I can but think many defects have escaped detection.

In examinations conducted in Cleveland in 1907 the percentage of those having defective vision in the well-to-do district was 32.4%, while in the poorer district it was 71.7%.

In fourteen other places it varied between 7.7% and 43% of the pupils examined. In Worcester it was 19.1%.

On preparing tables of the defects found in the various grades, I was surprised to find the wide variation from grade to grade. In the fifth grade only 34% had enlarged glands while in the sixth grade 80% showed this condition, and for the whole school 55%. This is not far from the proportion found in New York, 49 + % and Minneapolis 53%. Under this head I have included the submaxillary glands as well as the anterior and posterior cervical. Comparatively few pupils showed scars of suppurating glands. Among the younger children evidence of adenoids was more frequently found than among those of higher grades. The proportion among all the pupils examined was a little higher than reported in New York,—16% here, 12% in New York, and 12.8% in Minneapolis. Yet in the same table for New York under the head of defective nasal breathing the proportion is 14.4%.

The general nutrition of the pupils is better than I expected to find, 63 + % good, 32 + % medium and only 4% poor. In New York 6.3% are recorded as poorly nourished, and in Minneapolis 23.3%. This wide difference must be interpreted as a difference in standards and not in conditions.

My table shows a larger proportion of enlarged tonsils than either of the places I have mentioned, but when I felt in doubt about marking the card I asked the pupils about attacks of tonsilitis or sore throat and usually found they had had such attacks. To dispel any doubts I invited Dr. Holt to look at about fifty pupils and he confirmed my findings. The pupils were not selected to show the worst ones. The principal was asked to send to the office ten or twelve pupils from each grade whose cards showed that they had enlarged tonsils.

The proportion of children with defective teeth was much larger than reported from some cities, but not as large as in some others. In Chicopee, Mass., among 500 pupils examined only one was found to have altogether sound teeth. I was not surprised that a large number should have poor teeth; but I was surprised that the average number per pupil should be so high; that is eight in the first grade and nearly four in the ninth grade.

In New York only 55% of the pupils showed defective teeth. This difference is probably to be accounted for by the easy access to the clinics at the various dental schools. In Boston from September, 1907, to February, 1908, 1,686 pupils with carious teeth were looked after by nurses. This probably means that they were taken to the clinics at the dental schools.

At least 30 cities of Germany support free dental clinics where work is done on the teeth of school children; 96% of children are reported to have defective teeth in some parts of Germany.

The mouths of some of the children examined by me were in a filthy condition, and have never known the application of a tooth brush. Among the first three hundred pupils examined, beginning with the first grade, only eight had received any attention from a dentist except extraction. In a rather large proportion of these children the sixth year molars had begun to decay and some of them were beyond repair.

In a paper which appeared recently the writer described the various forms of bacteria found in carious teeth. The list included the Klebs-Loefler and tubercle bacillus as well as many other forms. The theory has been advanced that tubercle bacilli enter the system and spread from a safe hiding place in carious teeth. This theory is not borne out by investigations of the negro race which is more susceptibe to tuberculosis, yet the colored people as a race have better teeth than the white race.

In his report on School Hygiene in Massachusetts, Geo. H. Martin, Secretary of the State Board of Education says:

It is evident that although this work involves medical inspection of school children at regular intervals, the oversight of the sanitation of the school buildings, and the prevention as far as may be, of the spread of infection and contagious diseases including skin diseases, activity in these three directions will be incomplete unless the personal and home life of the child are also brought under systematic supervision. The home is the point at which health must be controlled ultimately. The school nurse should be the link between the school and the home, but in Worcester that link is missing. The nurse should follow up the pupils at their homes and see that they are treated by a physician or at the dispensaries, and should see that the treatment ordered is faithfully carried out.

The experience in other places has been that no attention has been paid to notices sent from the school in a large proportion of cases, and the same has been found here in regard to pediculosis, unless the child is excluded and the truant officer makes frequent calls. If a child is found to need glasses and the parents are too poor to pay for them, it should be possible to secure such glasses through the school department or some department at City Hall, but that is impossible at present. The only resource left is the Associated Charities and they have burdens enough already.

The District Nurses do help out but they have other work more urgent and so can give but little time to this work.

In some instances I think the family physicians have discredited the work of the school inspectors, perhaps feeling that we were interfering with their families; but that feeling I am sure is unjust. If the inspector is always careful to refer pupils to the family physician, when there is one, that feeling will soon disappear and we shall all work together for the good of the children.

TABLE I

Physical Condition

Belmont St. School

Grade	I		II		III		IV		V		VI		VII		VIII		IX		All Grades	
No. Pupils Tested	72		68		73		64		56		36		28		86		130		613	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Anæmia	1		1		1		1		2		1				10		3		20	3
Adenoids suspected	28	38+	14	20+	14	19+	7	11	6	10+	5	14			11	13	14	11—	99	16
Deformity Club foot	1																			
Cleft palate																	2			
Goitre					1															
Enlarged Glands				60	46	63	29	45	19	34	29	80+	15	53½	49	57	73	56	260	55
Ears defective					1		1				1		1		6	7	7	5+	17	3—
Eyes defective					13	18	9	14	8	14+	8	22	9	32	20	23	18	14	85	18+
Conjunctivitis															1		1			
Blind one	1		1								1						1		4	
Corneal ulcer	1												1							
Wear Glasses			1		3		3		1		3								11	
Heart Murmurs					5	6+			2	3½			2	7	4	4½	6	4½		
Lungs Bronchitis							1													
Nutrition Good				55	43	59	47	73+	36	64+	20	55½	18	53½	56	65	84	64½	301	63+
Nutrition Medium				35	28	38	11	17+	18	32+	16	44½	13	46+	27	31½	41	31½	154	32+
Nutrition Poor				10	2	3	6	9+	2	3½+					3	3½	5	4	18	4
Paralysis	2						1													
Rachitis	2																			
Pediculosis	21	29+	21	30+	26	35½	22	34+	16	28+	10	28	4	14	15	18	22	17	157	25
Teeth Sound	6	8⅓	4	6	4	5½	6	9+	10	18	8	22+	3	11	20	23+	38	29	99	16
Decayed	66	91⅔	64	94	69	94½	58	90+	46	82	28	78	25	89	66	77—	92	71	514	84
Tonsils	23	32	17	25	24	33	31	48½	15	37	18	50	13	46+	30	35	43	33+	214	35
Squint	2																			

TABLE II

Physical Condition

Harlow St. School

Grade	I		II		III		IV		V		VI		All Grades	
No. Pupils Tested	29		21		31		34		12		18		145	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Anæmia	1				1		4				3		9	6+
Adenoids suspected	9	31	11	52	4	13	7	20+	3	25	5		39	26+
Enlarged Glands	24	76	17	81	23	74	26	76+	6	50	12	66	108	74+
Ears defective			1										1	
Eyes defective	2	7—	2	9	4	13	7	20	1		1		17	11+
Wear glasses			1		3		2				1		7	4+
Squint	1		1										2	
Conjunctivitis			1										1	
Heart Murmurs							1						1	
Lungs Bronchitis	1				1								2	
Nutrition { Good	15	52	8	38	15	48+	16	47	10	83	12	66+	76	52+
Nutrition { Medium	11	38½	10	48	15	48+	15	44	2	17	5	27+	58	40
Nutrition { Poor	3	10	3	14	1	3+	3	9			1	5+	11	7+
Pediculosis	4								2		1		7	4+
Teeth Sound	1	3+	1	4+	3	9+	4	12	1	8+	5	27+	15	10+
" Decayed	28	96+	20	96	28	90+	30	88	11	91+	13	71	130	89+
Tonsils	12	41+	8	38	10	32	14	41	6	50	7	39	57	39
Paralysis	1													

TABLE III

Condition of the Teeth

	Belmont St.									Harlow St.					
Grade	I	II	III	IV	V	VI	VII	VIII	IX	I	II	III	IV	V	VI
No. Pupils Tested	72	68	73	64	56	36	28	86	130	29	21	31	34	12	18
No. with sound teeth	6	4	4	6	10	6	3	20	38	1	1	3	4	1	5
No. with 1 decayed tooth	1	1	3	4	6		4	8	22		2	1	1	2	
2 " teeth	3	4	5	7	10	8	4	9	18	1	3		4		3
3 " "	3	3	4	6	6	9	5	20	15	5		4	9	1	2
4 " "	6	5	7	4	11	4	6	10	12	5	2	2	2	5	3
5 " "	6	4	16	8	6	4	2	6	6	2	5	5	4	1	3
6 " "	3	11	12	11	1	4	1	6	5	4	1	5	2	1	1
7 " "	6	10	5	7	4		1	3	7	2	2	2	3	1	
8 " "	10	7	7	4	1		1		2	4	1	3	3		1
9 " "	6	3	6	4		1		3	1	2	2				
10 " "	5	4	2	2	1				1		1	2	1		
11 " "	6	4	1						1	1		3			
12 " "	6	1	1					1	1	1					
13 " "	2	4					1						1		
14 " "	2	2		1											
15 " "	1	1							1			1			
18 " "										1	1				
Total No. with defective teeth	66	64	69	58	46	28	25	66	92	28	20	28	30	11	13
Average No. defective teeth per pupil	8	7⅓	5⅔	5	4−	3+	4	4	3⅔	6+	5¾	6½	4⅘	4	4

REPORT ON THE POLISH CHILD STUDY ASSOCIATION

By Anna Grudzinska

Child study as a separate branch of psychology has, in recent years, awakened much interest in Poland. Among its pioneers were H. Wernic and A. Dygasinski whose first work consisted in rendering available through translation, the works of Preyer, Binet, G. Stanley Hall, Sully and others. The first original study made in Poland was Prof. J. W. David's "Observation of Children" in 1887, and a little later the studies of A. Szyc.

At this time there could be no question of founding a child study association, as the government forbade the formation of any new associations, even for scientific purposes. But as soon as, through the constitution in 1906, the formation of any society became possible, the Polish Child Study Association was immediately legalized, with a membership of over eighty from Warsaw and the adjacent country. During the first year, eight meetings were held and the administration decided upon the following lines of activity:

a. The opening of a reading room of periodicals for the use of those interested in psychology and child study. (This library was opened in Oct., 1907, and consists of one hundred and twenty journals and reviews.)

b. The opening of a library of scientific books.

c. The printing of questionnaires.

d. Organization of scientific meetings.

e. Public lecture courses.

f. The securing Mr. K. Stalykov's directions for anthropometrical measurements for the use of members.

g. The collection of funds for an experimental laboratory.

h. The printing of all the original studies made by members of the Polish Child Study Association.

i. The publication of a special review, devoted to the interests of the Polish Child Study Association.

During the year 1907-1908 seven meetings were held, at which the following papers were presented:

Sept. 27th. Aims and programmes of scientific meetings, by A. Szyc.
Children's drawings, by A. Grudzinska.
Oct. 25th. The significance of anthropometrical measurements in schools, by K. Stolykov.
Studies in Intelligence, by A. Szyc.
Nov. 28th. Psychology of arithmetic, by M. Borosiecka.
Children's language, by K. Appel.
Dec. 19th. The psychology of poor children, by J. Warszavska. (A discussion of Niceford's "La Race des pauvres.")
Development of moral ideas among children, by A. Szyc.
Jan. 23rd. The Language of Children, by K. Appel.
Notes on the language of a child, by J. Rzetkovska.
Remarks on the language of children, by William Grabovska.
Feb. 27th. The psychology of a nervous child, by Dr. W. Chodecki.
Psychology of Fear, by L. Wernic.

March 13th. Children's drawings, by A. Szyc.
Remarks on children's drawings, by W. Mazoviecka.

Of these fifteen papers, twelve were original investigations. A public lecture was also given by Dr. W. Chodecki on the suicide of children and adolescents.

During the year 1908-1909, ten meetings (three of which were devoted to discussion and arranging the programme for the year) of the Polish Child Study Association were held and three committees were appointed to collect and work up material on the following subjects: children's drawings, children's language and the mathematical concepts of children. The committee on children's drawings issued a questionnaire which was sent to infant, primary and normal schools. Through these, several thousand drawings were collected which formed a part of the Children's Art Exhibition in August. This material is now in the hands of the committee, and will be reported upon by them.

The committee on children's language issued two questionnaires, one adapted for children under three years and another for children from three to seven. It has also been decided to issue a third to cover the period of the first few school years.

The committee on the mathematical concepts of children, with the valuable aid of Prof. Dickstein, are working out a programme quite independent of existing systems. It is proposed to begin with the geometrical ideas of children, of direction, form, etc. Observations will begin at the 6th year. Reports of work done in other countries along this line will be given at future meetings of the Association.

The following papers were presented at the meetings held during the year 1908-1909.

April 24th. Backward children, by D. Zylterova.
May 22nd. Experimental psychology adapted to child study, by Dr. W. Sterling.
Psychological laboratories in Belgium, by Dr. Joteyko.
June 4th. Nobodies' children, by M. Kornfeld.
Imaginative types of lying, by J. Warzavska.
July 5th. Rich and poor children's ideas of wrong, by A. Szyc.
Dr. W. Heinrich's "Psychology of Feeling," by J. Kenig.
Oct. 24th. The significance of the psychological study of children, by J. W. David.
Drawings of country children, by J. Ciembrokievic.
Nov. 23rd. A new method of reading, by M. Falski.
A study of abnormal children by the Binet method, by D. Zylterova.
Dec. 21st. Discussion of previous papers.
The dramatic instinct of children, by W. Choranovska.

LITERATURE

How Two Hundred Children Live and Learn, by RUDOLPH R. REEDER. New York, Charities Publication Committee, 1910. 247 p.

The topics treated here are dietary, food interests and incentives, exercise, environment and play, industrial, economic, moral, religious instruction, punishment, motivation and personal touch, the diary of a day. The book is illustrated by a number of rather interesting cuts.

Games for the Playground, Home, School, and Gymnasium, by JESSIE H. BANCROFT. New York, The Macmillan Company, 1909. 456 p.

These games are described under the following captions:—counting out, choosing sides, who is it, miscellaneous, active games, quiet games, feats, singing games, balls and bean-bags; and then follow the indexes, viz., games for elementary schools, high schools, for playgrounds, gymnasiums, and large numbers, games for boys and girls, summer games, house parties, country clubs, children's parties, seashore games, etc. There are a number of interesting illustrations and often the music is added, together with the words and diagrams for games. The book is provided with a good index for each kind of game, of which in all there are several hundred. Admirable as this work is, it would add materially to its value if the author had appended at least a few references on the literature of the subject.

L'Amérique Précolombienne. Essai sur L'Origine de sa Civilisation. Quebec, Laflamme et Proulx, 1908. 376 p.

It is a great convenience for all interested in this subject to have the main conclusions of the multifarious and scattered studies in this field brought together in so compact and convenient an epitome with plenty of illustrations. The writer of this notice is entirely unable to judge of the quality of the scholarship illustrated by its pages but no one can fail to be impressed by the magnificence of the monuments which are represented in these cuts.

La Vie Mentale de l'Adolescent et ses Anomalies, par AUG. LEMAITRE. Saint Blaise, Foyer Solidariste, 1910. 240 p.

The first chapter deals with the thoughts of adolescents; then takes up the chief synopsis, such as personification, color audition, diagrams. Then follow the rare synopses illustrated by several cases. Chapter four, internal language; chapter five, paramnesias, those with fixed dates, kinetic, negative, and with reversed images. Under mental dissociations he treats ecstasies, autoscopies, autoscopic dreams and hallucinatory guidances. He describes several cases of complex hallucinations. Then follow chapters on multiple personalities, parapsychisms, bad habits, and suicides.

Stories and Story-telling in Moral and Religious Training, by EDWARD PORTER ST. JOHN. Boston, The Pilgrim Press, 1910. 100 p.

This is a timely, effective and condensed message to all interested. It tells us what the story really is, how to get the best out of their idealism and realism, some vital traits of good stories, some tricks of the trade, learning how to tell them, the story interest in childhood, in early and in later adolesence, the source of the story's power and where to find them. The author has thought and read carefully upon the subject and introduces at the end of each chapter effective quotations from others, outlines of study, and suggestions for further work, together with literature.

Echoes from the Forest, by H. W. BUGBEE. Boston, Richard G. Badger, 1905. 71 p.

These poems, by a young amateur, certainly have a genuine ring and flavor to them. It is doubtful whether any one has more profoundly appreciated the scenes that are characteristic of Western Massachusetts than this writer. The gloomy days, bluebirds, a forest stream, hemlocks, Indian summer, spring, the Connecticut River, the pine, equinoctial, moon, violets, dream life, the forest spirit, the fire-light, immortal days,—all these are treated with a genuine and sometimes rather touching and moving poetic spirit.

The Awakening of Spring. A Tragedy of Childhood, by FRANK WEDEKIND. Translated from the German by Francis J. Ziegler. Philadelphia, Brown Brothers, 1909. 161 p.

This drama produced intense excitement in Germany but its production, we believe, has not yet been allowed by law in this country. It is in plain words the story of a boy who violated the chastity of a young girl because the latter was absolutely ignorant and innocent, who nevertheless had to pay the penalty of her mistake by her life. It is pathetic but so intensely realistic are its conversations and its story that it offends the delicacy of many people.

A Book of Verse, by HAROLD BARNES. C. F. Gardner Printing Co., Princeton, Ind.

Here we have a group of poems by a young man which are full of the spirit of the West. There is an ode to the chigger, a charaterization in a few lines of a religion without a creed, Old Glory, when the flies come back, death, friendship, Fremont and the Union, the discovery of America, a season's song, class song, southern Indiana, Kansas, sleighbells, Marie, an April shower, etc.

The Evolution of the Child Mind, by MARY HIGGS. London, The Froebel Society of Great Britain and Ireland, 1910. 67 p.

This résumé is devoted chiefly to moral education, which is treated under the captions of the unmoral, the imitative, the personal and altruistic stages. Then follows a chapter on the home and the school. The author writes with a fine feeling for, and large knowledge of, her subject, which she approaches perhaps rather more from the broad humanistic view than from that of a specialist.

Annual Report of the Board of Regents of The Smithsonian Institution. Showing the Operations, Expenditures and Condition of the Institution for the Year Ending June 30, 1908. Washington, Government Printing Office, 1909. 801 p.

Besides the report of the secretary, which this year covers over eighty pages, this volume contains an unusually interesting collection of essays from various sources, mostly on physical science, with a number of biological essays included. As usual, the number of illustrations is copious and their quality as a rule excellent. By reading these papers a general reader can keep well abreast of the development of the sciences it treats.

Men and Women of America. A Biographical Dictionary of Contemporaries. New York City, L. R. Hamersly & Co., 1910. 1592 p.

It is really a second edition of another work entitled "Men of

America," although nearly half the biographies in the present volume are entirely new. We also have quite a number of full page portraits introduced. We are not informed whether these plates are paid for by those who appear or, if so, at what cost to the authors, if any. Their selection can hardly be said to be determined by as careful methods as those applied to the selection of the members of the Temple of Fame. A good many of these had certainly never been heard of by the writer of this notice until they appeared here.

Epitaphia: being a collection of 1,300 British epitaphs grave and gay, historical and curious, annotated with biographical notes, anecdotes, etc., by ERNEST R. SUFFLING. London, L. Upcott Gill, 1909. 476 p.

This work opens with an introduction upon modes of burial and the general survey of interment in the British Isles from early times, together with an account of peculiar interments, church folk-lore, and a short chapter upon American epitaphs. The author has spent forty years as a stained glass artist and in the course of his business has visited nearly every part of the British Isles, including many odd nooks seldom visited. It has also made him acquainted with many clergymen who are lovers of archæology, folk-lore and other fields of antiquity. He habitually noted all these things by the way and so has accumulated an immense budget of matter himself, which has been supplemented by reading. He has divided his material into several score of necessarily rather arbitrary captions, such as laudatory, bombastic, epigrammatical, witty, profane, chronograms, wives, husbands, children, large families, eating, drinking, epitaphs on animals, soldiers, sailors, lovers, anglers, hangings, death by murder, lightning, and various accidents, illiterate epitaphs, heart and skull burial, Irish, Scotch and English, and many other types of epitaphs.

Exposition and Illustration in Teaching, by JOHN ADAMS. New York, The Macmillan Company, 1910. 428 p.

This book is dedicated to the author's old teacher, James Liddell. Its chief topics are as follows: nature and scope of exposition and illustration, mental content, activity, backgrounds, suggestion, conditions of presentation, its order, exemplification and analogy, the story as illustration, elaboration, degree in illustration, the picture, diagram, and dangers of illustration.

A Manual of Common School Law, by C. W. BARDEEN. 9th edition. Syracuse, N. Y., C. W. Bardeen, 1910. 470 p.

This is an admirable compilation which cannot fail to be serviceable, especially to teachers of New York. The law is epitomized and very conveniently arranged under districts, duties of officers, taxes, hiring, classification and wages of teachers, dismissal of teachers, duration of contract, attendance, hours, rules, authority, compulsion, course of study, punishment, suspension, certificates, the union, town, city, county, state, school, and the regents of the university.

Bibliotheca Pædagogica. Verzeichnis der neuesten Lehrmittel sowie von Werken der Erziehungs-und Unterrichts-Wissenschaft. 19. Jahrgang, 1908.

This remarkable index of illustrative pedagogical material, which is copiously illustrated, containing even many colored charts, bears as its motto the sentence of Pestalozzi that *Anschaung* is the absolute basis of all knowledge. The literature is conveniently arranged under some twenty-two captions, following partly grades and partly topics, such as reading and writing, elementary arithmetic and geometry, history of literature, language, physics, political geography, trade, commerce, history of culture, art, anthropology, hygiene, microscopy, zoölogy, botany, chemistry, technology, drawing, industries, gymnastics, singing and music, etc.

Report of the Commissioner of Education for the year ending June 30, 1909. Volume I. Washington, Government Printing Office, 1909. 598 p.

We most heartily congratulate the new Commissioner of Education, Dr. Brown, on his progress in catching up. The first long chapter is devoted to current topics very comprehensively. Then follow an account of educational legislation, state associations, Hawaii, the Philippines, Porto Rico, progress in Argentina, Great Britain, Ireland, France, schools for crippled children abroad, and current foreign topics.

War on the White Slave Trade. A Book Designed to Awaken the Sleeping and to Protect the Innocent. Edited by Ernest A. Bell. Chicago, Charles C. Thompson Co., 1909. 481 p.

Thirteen writers, all of them apparently earnest social workers in this field, have written this book, which contains thirty-three chapters, together with various illustrations. It gives the history of the white slave traffic and the efforts at suppression, describes its dangers, a clearing house, various confessions from those who have been rescued, has a most condemnatory chapter on the state of things in Boston, which it says is hypocritical in that to such an extent it ignores the existence of the evil, gives the history of the Midnight Mission, and describes present conditions in quite a number of cities, has a special study on the recruiting ground, practical means for the protection of girls, on the diseases, the black plague, how the procuresses, pimps and panders work, etc. One of the best chapters is an epitome of the laws of different states, which, while it shows a great variety, indicates gradual approximation. There can be no doubt whatever that many girls are allured, drugged, made love to, even subjected to false marriages, attracted by promises of good employment and large wages, and sometimes actually seized bodily and sold into a life of shame, where they sometimes spend years against their will and in a few cases behind actual iron bars, which were photographed. Country girls are especially played upon in this way, so that special agents of protective societies are now stationed at many ports and central railroad stations to be ready to protect the innocent upon their arrival. Boston is credited with having a rather unique system which is described as that of cadets, and a call system where women are summoned by telephone. This city claims advantage in having no special groups of infamous houses, that is, no red-light district, but in having these houses scattered through different parts of the city. Unfortunately in this latter city a schism has arisen between the Watch and Ward Society, which aims to protect the innocent, and the police commissioner. The Society claimed to have a list of two hundred houses but admits that its list was made up more than two years ago, while the commissioner claims to have suppressed more than three-fourths of all these houses. One very practical point in all this work is how evidence shall be obtained. While the police can send detectives disguised to get evidence, the commissioner intimates that societies often find it difficult to do so without sending agents who themselves participate in the vicious practice of the house.

Source Book for Social Origins, by WILLIAM I. THOMAS. University of Chicago Press, Chicago, 1909. 932 p.

This book had its origin in the necessities of the class-room, but it is hoped may be the means to extending interest in the beginnings of social society to a larger public. The five parts of the book must suffice to briefly designate its scope. They are as follows: 1. The Relation of Society to Geographic and Economic Development (here seven papers by as many different authors are printed); 2. Mental Life and Education; 3. Invention and Technology; 4. Sex and Marriage; 5. Art, Ornament, and Decoration; 6. Magic, Religion, and Myth; 7. Social Organization, Morals, and the State.

The Face of China, by E. G. KEMP. Chatto & Windus, London, 1909. 276 p.

Nearly all the material of this book is drawn from personal observation and from information obtained on the spot by missionaries. It discusses the sphere of German influence, silk, the sacred shrine, the home of Confucius, the yellow river, Peking, the Pehan Railway, on the Yang-tse, Mt. Ome, from China to Burmah, the present situation in China. The work is enlivened by several scores of drawings, photographs, and colored pictures of various kinds, which make up a very large part of the merit of the volume.

Work of the Colored Law and Order League, by JAMES H. N. WARING. Committee of Twelve, Cheyney, Pa., n. d. 29 p.

This is a report of a body composed of the best colored men of Baltimore, together with those foremost in civic betterment, and contains results of investigations of colored neighborhoods: sanitary conditions, density of population, the number of saloons, their relation to schoolhouses, to saloons for the whites, etc., with various maps, average earnings, occupations, fecundity, etc.

Der einzige Kind und seine Erziehung, von EUGEN NETER. 3. und 4. Auflage. Otto Gmelin, München, n. d. 50 p.

The subtitle of this work is "An earnest word of admonition to teachers and educators." The pitifulness of the only child is depicted in rather strong colors. Their moral and physical character is defective. The topic is a grave one; but despite Baginsky's word of introductory commendation, the author writes in apparent ignorance of the literature on the subject and leads us to infer that he is first in the world to call attention to the subject. It is singular that there is not a library reference in the whole book.

The Crime Problem, by VINCENT MYRON MASTEN. Star-Gazette Co., Elmira, N. Y., 1909. 156 p.

This is a straightforward, simple presentation of a great subject containing slight but effective chapters upon immigration, our present system, that of Britain; primary and secondary industrial schools; reformatories; convicted prisoners, houses of reception, stages, the employment of officers, identification, pension features, general and specific discipline; conclusions.

Principles and Methods of Moral Training, with Special Reference to School Discipline, by J. WELTON and F. G. BLANDFORD. London, W. B. Clive, 1909. 262 p.

The chapters here are, nature of moral training, habit, duty, virtues, conscience, school, community, exercise of discipline, organizations of the school, relations between it and the home, stimulus, and restraint.

Illustrierte Völkerkunde, herausgegeben von GEORG BUSCHAN. Strecker & Schröder, Stuttgart, n.d. 464 p.

This is a copiously illustrated and excellent text-book in anthropology where data are arranged according to countries. First comes North, South and Central America, Oceanica, Asia, Europe and Africa.

A Course of Study and Teachers' Handbook in the Common Literature of Life, by ALLISON WARE. San Francisco State Normal School Bulletin No. 10 (new series). Sacramento, W. W. Shannon, 1909. 207 p.

This is a very thorough-going and comprehensive study which impresses us as perhaps on the whole the very best of many good ones that have proceeded from the San Franciso Normal School. We confess, however, we would like to see the whole thing in operation.

Register of International Correspondence Schools. Third edition. Scranton, Penna., International Correspondence Schools, n. d. 251 p.

This large volume contains the names of 107,239 students who have completed their courses or have made considerable progress therein, together with an explanation of the I. C. S. system of instruction by mail. It is the third edition. Most of their students complete arithmetic and perhaps one or more other topics.

Die Jubelfeier des 500 jährigen Bestehens der Universität Leipzig—85 Bilder nach offiziellen photographischen Aufnahmen. Text von Privatdozent M. Brahn, Leipzig. Röder & Schunke, Leipzig, 1909. 64 p.

This work consists of sixty-four full-plate photographs, together with a preface and explanation describing the recent five-hundredth anniversary celebration at Leipzig.

Die Flugmaschine, herausgegeben von E. RUMPLER. Gustav Braunbeck, Berlin, 1909. 327 p.

This work is to some extent historical but comes down to the present, has many score of illustrations, and gives the Wright Brothers the place of honor.

Christus Centuriarum, by JAMES DAVIDSON DINGWELL. Boston, Richard G. Badger, 1909. 59 p.

This is a collection of poems by a clergyman. They seem to contain a ring of genuineness and sincerity. They are dedicated to his parents.

Human Physiology. An elementary Text-book of Anatomy, Physiology, and Hygiene, by JOHN W. RITCHIE. New World Science Series. Yonkers-on-Hudson, New York, World Book Company, 1909. 362 p.

Smithsonian Institution and United States National Museum. Report of the Progress and Condition of the United States National Museum for the Year Ending June 30, 1909. Washington, Government Printing Office, 1909. 141 p.

The Mendel Journal, October, 1909. London, Taylor, Garnett, Evans & Company. No. 1, 216 p.

Studies of Our Cone-Bearing Trees, by EDITH R. MOSHER. Syracuse, N. Y., C. W. Bardeen, 1909. 23 p.

La Langue Internationale et la Science. Considérations sur l'introduction de la langue internationale dans la science, par L. COUTURAT, O. JESPERSEN, R. LORENZ, W. OSTWALD L. PFAUNDLER. Traduit par M. Eoubier. Paris, Ch. Delagrave, 1909. 67 p.

The Aims, Scope and Methods of a University Course in Public School Administration, by FRANK E. SPAULDING, WILLIAM PAXTON BURRIS, and EDWARD C. ELLIOTT. National Society of College Teachers of Education. May be obtained by addressing Frederick E. Bolton, Iowa City, Iowa, n. d. 94 p.

Some Desiderata in the Science of Eugenics and Bibliography of Historiometry, by FREDERICK ADAMS WOODS. Breeders' Association, November, 1909. 6 p.

Beginner's Botany, by L. H. BAILEY. The Macmillan Company, New York, 1908. 208 p.

This is an admirable text with 302 illustrations, written by a master, and based on the assumption that in teaching plants and animals to beginners, they themselves should be made the theme, and the pupil at the start should have first-hand acquaintance with the entire plant.

Plant Study and Plant Description, by W. H. D. MEIER. Ginn & Co., Boston, n. d.

This is an elaborate set of pages on plant study, with directions for laboratory and field work. All is bound up with blank sheets, with which the student can illustrate the methods set forth in the text.

The Agricola of Tacitus. With introduction and notes by Duane Reed Stuart. The Macmillan Company, New York, 1909. 111 p.

The Russian Fairy-book, translated by Nathan Haskell Dole. Grant Richards, London, 1908. 126 p.

This work contains seven stories ; Vasilisa, the Beauty; The Bright Hawk's Feather; Ivan and the Gray Wolf; The Little Sister and Little Brother; The White Duckling; Marya; Morevna and the Frog Queen; with sixteen full-page, colored illustrations.

The Origins of Leadership, by EBEN MUMFORD. The University of Chicago Press, Chicago, 1909. 87 p.

Report of the Commissioner of Education for the Year ending June 30, 1906. Vol. II. Government Printing Office, Washington, 1908. 645-1308 p.

NOTES

The decree of the Austrian Minister of Education Oct. 22, 1909, required the provisional introduction of medical inspection into a number of state institutions on the first of December last. This inspection is to be made by the instructor in hygiene, if he is willing to take up the service; and he receives additional pay for the work. The law further provides for sanitary inspection of the school buildings and medical inspection of the pupils in the practice schools.

The inspection of school buildings is to be made once each year by the school physicians in co-operation with the director of the institution, and the engineer who has charge of the building. The inspection is to include the whole institution, and all matters relating to heating, ventilation, natural and artificial lighting, the condition of the doors, windows, curtains, floors and seats. Special attention is to be given to the gymnasium. Further the inspection is to extend to the character of the drinking water, the arrangements for personal cleanliness, the work rooms, rooms for clothing, the playgrounds, courts, etc.

In the practice schools, inspection of the pupils not only for contagious diseases, but as regards general physical condition, and special investigations in cases where suspicion of contagious disease makes this necessary is provided for. In the kindergarten special attention is given to the detection of contagious diseases.

As regards the students who are in training for the position of teacher, provision is made for tests of the health condition of all entering pupils; and the physical examination follows substantially the same lines as that required in the practice schools. The half yearly measurement of the chest can be limited to those candidates who are of weak constitution or where lung disease is suspected. The school physician is required also to lecture on the aim of medical inspection.

Blanks and instructions are provided. The health blank for each pupil to be filled out by the physician contains 22 rubrics, besides advice in regard to the school, observations by the teachers, and communications to the parents. They are as follows: (1) height, (2) weight, (3) chest girth, (4) general condition of nutrition and strength, (5) general diseases, (6) glandular swellings, (7) thyroid gland, (8) mouth and teeth, (9) nose and throat, (10) larynx and speech, (11) condition of the lungs, (12) abdominal hernias, (13) organs of circulation, (14) urinary organs, (15) bones, joints, muscles, (16) nervous diseases, (17) mental development, (18) eyes and visual acuity, (19) ear and hearing, (20) skin diseases and parasites, (21) diseases passed through, (22) special remarks. W. H. B.

The first Congress of Polish Neurologists, Psychiatrists and Psychologists was held this year at Warsaw, October 11 to 13. Nearly three hundred savants from all parts of Poland were present. In the psychological section the following subjects were presented. Psychological Method by Prof. Dr. Kasimir Tvarsovski; Unconscious States, by E. Abramovski; Researches on Intelligence, by Prof. J. W. David; Subjective Selection, by Dr. A. Radzivillovicz; a New Theory of Memory, based upon experiment, by A. Abramovski; The Psychology of Artists, and Unconscious States, by A. Lubecki; Concerning Perception, by Dr. W. Bieganski; Mental Development, expressed quantitatively; the Adaptation of Psychology to the Present State of Science, and the Needs of Individual Education, by Prof. J. W. David; Researches on the Intelligence of Normal and Abnormal Children, by Dr. D. Lylbezowa; The Significance of Lombroso in the Field of Criminal Psychology, by S. Posner; Is Psychology a natural Science or Philosophy?; The Psychological Theory of Space, and the Scale and Evolution of the Senses, by M. Hraszevski; the Development of Ideas and Interests in Children during School Hours, by A. Szycovka; Experimental Contributions to Researches on Perception of Depth, and on Applied Psychology, by L. Kaopinska; The Relation of Mind and Body from the Standpoint of the Theory of Knowledge, by J. Levkovicz; Observations on Reproductive Ideas, and Psychology in Schools, by J. Segas; On the Kiff and X Rays, by J. Ochorovicz; The Mind of the Child in the Light of Experimental Psychology, by W. Herling; The Theory of Feelings, by A. Mahrbourg; Experimental Researches on the Psychophysiology of Pain, by Dr. M. Hefanovka; Changes of Personality by A. Thatnicki; The Threshold of Nervous Excitability in the Light of the Principle of Selection, by J. Wasserberg. All these papers were followed by discussion, and great interest was shown throughout the Congress. Among the more notable papers those of Prof. Dr. Hraszevski—who is not an advocate of the laboratory method in psychology but a representative of the Vienna Brentano school—on Methods in Psychology; of Professor David, who presented a new theory of intelligence which attracted much attention; and of Mr. Ochorovicz whose investigation of the new ray X aroused much discussion. The latter brought with him to the Congress, a young girl of mediumistic powers to illustrate his theory. These investigations have been published in the Annales des Sciences Psychique. ANNA GRUDZINSKA.

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THE MOVING PICTURE IN RELATION TO EDUCATION, HEALTH, DELINQUENCY AND CRIME

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The nineteenth century gave us the laboratory; the twentieth, the moving picture. As the laboratory, with the precise technique, accuracy of observation and experimentation, and correctness of inference, which it exacts when properly employed, represents the high water stage during the last century in the evolution of effective educational tools; so the kinetoscope, with its alluring shifting scene, its compelling reality, its limitless range of subject-matter, represents the most highly evolved educational instrument which the present century has bequeathed. Rightly used it is one of the most valuable allies and supplements to the recognized historic media of instruction. To exaggerate its importance would be difficult. It has been estimated that the moving picture addresses an audience every day of about three million children and adults. The psychology of the moving picture craze can be readily explained. Let us try to understand why it is that the moving film possesses such remarkable excellence as a medium of entertainment and instruction. Understanding the psychology of the moving picture, we shall be in a position to better appreciate the pedagogical and moral questions which it suggests.

(1) The moving picture method of presentation is in harmony with one of the basal tenets of modern educational practice, namely: in teaching, the processes of *nurture* must be made to dovetail with the pre-existent processes of *nature*. The artificial training of the home and school must find its roots in, and be grafted upon, nature's capital, the child's

hereditary endowments. Human culture must utilize instead of suppress native capacities, instinctive tendencies, inherited nervous organization. We rear securely only when we build upon nature's foundation, when we utilize hereditary tendencies aright by diverting them into profitable channels. It would thus appear that one of the sovereign remedies for inattention and educational waste is to appeal to instinctive interests, or to the hereditary forms of attention. How is it possible to arouse instinctive interests? By using those *stimuli* which have played a dynamic rôle in racial evolution; the stimuli to which it was necessary under primitive conditions to attend for self-preservation, stimuli which thus obtained a "survival value" in organic evolution and which are therefore attractive even now though they no longer possess any considerable degree of survival value.

Such stimuli are *living* things in contrast with dead things, *moving* things in contrast with static things, motor phenomena in contrast with intellectual matters, *colored* rather than colorless stimuli, *contrasting* stimuli, *varied* and changing stimuli, *novel* stimuli (which awaken curiosity), *play* and *constructive* activities. Attention to such stimuli as these was exacted of primitive man in order to insure his own protection. Not to attend to them would have meant injury or death. A movement signalized the approach of a possible enemy: in the state of nature the law of social economy was 'dog eat dog,' and all strangers were objects of fear. Repeated attention to these stimuli therefore culminated in the formation of certain *habits* of attention which were transmitted in course of time to the offspring as *instinctive interests.* It is thus that *play* arose. Work habits were transmitted as play dispositions. Ancestral work established certain nervous pathways of discharge. The child was born with these pathways permeable, organized. With him, to imitate adult occupations was a form of play that was greatly enjoyed because the hereditary pathways were open and would thus function without much effort. Accordingly man now under other than primitive conditions attends to all these stimuli because of inherited nervous predispositions; they represent *instinctive* interests in contrast with *acquired* interests, the interests which are the result of individual experience and which attach to one's vocation or avocation, to science, philosophy, literature and art. When the parent or teacher therefore appeals to the child's or adult's instinctive attention, he is placing himself in league with nature and availing himself of a vast hereditary momentum, a capital loaned by nature for accomplishing the educational ends which nature herself could not directly achieve. The potency of hereditary interests and involuntary attention surpasses im-measurably in the young child the strength of his acquired interests and voluntary attention; hence not to use this force for personal development and growth would be to squander a priceless hereditary dower.

Now, the compelling fascination of the moving picture is due to the fact that it is based upon the dynamics of spontaneous attention, the laws which govern our inherited tendencies to attend. By presenting processes or pictures in motion the biograph calls forth the instinctive tendency to attend to *moving* things. We are strongly tempted to attend to things that move. Often the movement is so striking as to lose its illusory character, so that the objects are literally transmuted into *animate* existences (so fearfully animate that spectators may sometimes be seen to shrink from an approaching steed, or to shriek in fright at a murderous attack), thereby more completely enthralling attention, owing to our instinctive tendency to attend to *living* things. The superiority of the biograph over the stereopticon and, to a degree, over the laboratory is in large measure due to its perennial appeal to these powerful factors of instinctive interest. While the stereopticon is limited to *static* presentations, the moving film can reproduce *processes* themselves in all their vivid and interesting detail.

Scarcely less noteworthy is the manner in which the moving picture uses the other instinctive interests. This is seen in the constant recurrence of sharp *contrasts* in the films in regard to shade, color, size, scene and happening; and in the introduction of the novel, unusual, bizarre, grotesque, ludicrous, comic and playful, which furnish the basis of appeal to the instinctive liking of *change* and *variety*, and of the instincts of *curiosity* and *play*. In presenting the progressive evolution of a story, journey, battle, theft, murder, assault, capture, wedding, coronation, prize fight, parade, manufacture of an article, the playing of a joke, and what not, with a shifting of scene and plot that finds no parallel in actual life so far as rapid development and unexpected denouement are concerned, the moving film in still greater measure utilizes the force of expectant attention and curiosity. Stimulated to anticipate the outcome, whether or not one feels that it is predictable, the images of the imagination, in agreeable playful activity, arouse and sustain attention. With all these factors cooperating to elicit effortless attention, is there cause for wonder that millions sit daily entranced before the magical spectacle of the cinematograph screen? Is it strange that our city blocks have become honeycombed with moving picture shows, while we find no magic lantern theatres? Cleveland now has over 100 of the former but none of the latter. The development of the moving picture business is the theatrical sensation of the century. The psychology of this sensational development is obvious. The first significant merit, therefore, of the moving picture as an educational instrument is its coerciveness, by which I refer to the compelling hold which it takes upon involuntary attention by virtue of its liberal appeal to the individual's hereditary neural tendencies.

(2) Scarcely less patent is the quality of *realness* of the moving picture, to which reference has already been made incidentally. So vivid and life-like are the objects, scenes, plots, and dramas presented that the picture presentation sometimes surpasses the objective counterparts themselves in dynamic realism. This compelling realism depends on the qualities of the moving film already enumerated: its contrasts, its ceaseless progression, its throbbing action, its soul-stirring plots. In this respect the moving picture form of instruction is infinitely superior to the linguistic form or the telling method. Words fail to exercise the hold upon the imagination that the moving picture does. It provides an opportunity for *objective* instruction sometimes second only, if not frequently actually superior to, the objects themselves in realistic veracity and attractiveness.

(3) Another advantage of the biograph is the high degree of objective *control* and command which it gives over the subject-matter. It is free from the ordinary limitations of space and time, of natural cause and effect, and of human enactment and contingency. Like the laboratory it can manufacture situations at will, arranging, producing, modifying and controlling the conditions absolutely. It can transport distant scenes and events from anywhere to everywhere; it can bring the past into the present, and preserve a living record of the present for the future; it can reproduce the effects of earthquake, storm, fire, famine and war long after these agencies have ceased to devastate; it can exaggerate or distort escapades, events, traits and situations; it can produce in pantomime performances which would be impossible, or intolerable, or illegal in reality; it can present evolutions superior in wonder and mystery to the magic of witchcraft. With exposures lasting one forty-two thousandth of a second, 400 successive phases of the firing mechanism of an automatic pistol have been photographed in less than one-tenth of a second.

(4) The moving picture screen also presents possibilities in the direction of *popularizing* instruction which surpass our fondest dreams. It is a people's lyceum, a pervasive force touching the lives of the masses, millions of children and adults every day, as no other educational instrument has ever done before. Here we have the suggestion of a new interpretation of the continuation school—a people's extension course which

is proving equally attractive to the old and young of both sexes and which transforms instruction into intellectual diversion and recreation. That this value of the moving screen is not unappreciated in certain communities is indicated by the fact that in South Chicago talks have been given by various specialists at moving picture shows as a phase of social betterment work. Reinforced by the pictures, these talks, according to the managers, who have superior means of discovering how certain bills take, receive appreciative attention by large audiences of children and adults. That moving film manufacturers are rapidly awakening to the educational potentialities of moving pictures was likewise evidenced by a recent "free educational exhibit of animated photography," projected and arranged by one of the local film supply houses in Cleveland for the special entertainment of the educators in the public and private schools and colleges of Cleveland. This exhibit, which lasted two hours and a half, was a notable demonstration of superb educational views in colors. Glimpses were given of the leather industry, wild birds in their haunts, the formation of drops of water, various chemical combustions, fruit growing, microscopic curiosities, familiar reptiles, logging operations, tropical creatures, a trip from New York to Genoa, views of Paris from the Eiffel tower, etc. Here was a miniature excursion in the brief space of one hundred and fifty minutes into the world of science and travel. It was prophetic of the coming scientific conquests in the field of animated educational photography.

(5) Finally the *economic* factor has contributed much to popularize the moving picture entertainment. It provides a comfortable seat for a lazy hour at little expense. It has created a new world, enchanting and mysterious, to the legion who because of limited purse had heretofore been denied access to the more pretentious amusements. Now there is scarcely a hamlet so poverty stricken as not to be able to support a picture show.

From the educational viewpoint, therefore, the moving picture is potentially the unique instructional tool of the present century. But the schools have been slow to appreciate its value as a medium for imparting knowledge. Here again current educational practice has failed to square with theory. We have allowed the educational possibilities of the film to be overshadowed by its amusement features. With one of the best educational contrivances the times afford for arousing instinctive forms of attention within hand's reach, we are content to go on demanding voluntary attention through the traditional media, and let the child fight out his battle against fatigue, wandering attention, nervous tension, and forgetfulness.

In lessons in history, biography, geography, industry, manufacture, agriculture, etc., the schools can make a generous and profitable use of educational moving pictures. They are too valuable to neglect. Obstacles there are, to be sure, to their employment, but these are not insurmountable, particularly in the larger cities. To make only one practical suggestion: let boards of education procure as a minimum one moving picture outfit for a given number of buildings; let them secure a travelling moving picture demonstrator to devote himself exclusively to this work, travelling from school to school, arranging the details of the picture demonstrations, in consultation with the regular teachers, and supplementing the pictures with appropriate talks. Each school might well be allowed one or two moving picture periods in the weekly programme. The same pictures would naturally pass in rotation from building to building. They could be correlated with the regular classroom work, and thus illustrate lessons already given or serve to introduce lessons to be given. Or, if this plan seems too cumbersome, moving picture demonstrations could be given in certain centrally located school auditoriums to which all the pupils in a given district, or all the pupils in certain grades in the districts, would have access. These exhibitions could be given on certain afternoons—after the regular school hours if it is desired not to break into the programme. Or they could be given on Saturday mornings. In both of these events attendance would necessarily be optional. The exhibitions would have a great educational value, even if no attempt were made to correlate them with the regular lessons. But in any case they should be interpreted by a competent lecturer. The details of this work would have to be worked out by the administrator; I desire here merely to suggest the feasibility and possibilities of utilizing moving pictures as an instructional instrument in the schools. Will the schools respond to this opportunity or pass it by? At the present time the moving film is as conspicuously *not* a force in the school community as it *is* a force in the larger civic community.

Having said this much in favor of the moving picture, let us turn to a different aspect of the question. The moving picture has become a force in the modern city and town that cannot be ignored. It is a positive agency that bodes much for evil or good, and that is destined to affect some of our most vital national problems in hygiene, morality, and delinquency. A multitude reaching into the millions is brought daily from the great vitalizing out-of-doors into a modern urbanized hothouse, often reeking with noxious fumes and exhalations, and surcharged with a death-dealing superheated stuffy atmosphere. In an investigation conducted during a period of two months by the children's committee of the Cleveland Humane Society it was found that 50 per cent. of the places examined (somewhat less than eighty) were unsanitary, usually owing to the foulness of the air. The ventilating fans were often found motionless. In a later examination by the superintendent of health it was reported that 25 out of 30 theatres inspected revealed sanitary conditions such that it was necessary to order the proprietors to close the houses unless the conditions were radically improved. Many of these places had no windows or exhaust fans; many had inadequate exits, and unclean floors or cellar openings through which foul air entered the theatre. Considering that these houses have a seating capacity from 150 to 400 and are being filled and refilled continuously, we have here conditions that are a menace to the health and safety of the community. These places are not only unhygienic but often they are death traps in case of a stampede or fire. That hygienic conditions in these show places are such as to force investigation by civic and charitable organizations in the face of strict municipal building codes and sanitary regulations, indicates how easily we may be deceived by trusting to the enforcement of the sanitary code, and how desirable it is to supply a substitute for the public show places in order to divert children from these places. Were the moving pictures made a regular feature in the school programme, there would be less excuse for children to visit the public places.

Unfortunately we do not yet possess studies which approach anything like accuracy bearing on the influence of the moving screen upon the dispositions, feelings and health of the spectators. A cursory investigation of this kind made recently by the writer gave surprising results. Sixty-three girls ranging from 17 to 21 years of age, in an elementary class in psychology in a teachers' training school, were asked to state in writing the effects which they had noticed moving pictures have upon their feelings, dispositions and health. Special pains were taken to emphasize that they must be careful to neither over-state nor under-state the case, but remain true to the facts.

More than half of the girls (or 37) stated that watching the moving pictures induced headache. The eyes were mentioned fifty times, fatigue or strain of the eyes being mentioned 18 times, pain in the eyes 17 times, and blurring 15 times. A "tired or drowsy feeling" was induced in twelve cases, dizziness in 9, nervousness in 9, "feeling cross" in 4, a feeling of disgust in 3, and the following were mentioned once each: an impairment of the memory afterwards, a "queer mood," a feeling as if "walking on air," and a "dreamy, adventurous frame of mind." Exciting or unpleasant scenes were the usual causes of the nervous strain.[1] Eight ascribed their headaches to the overheated or exhausted air, nine to the motion of the pictures, four to eye strain and one to the brightness of the pictures. Five suffered from headache only when sitting near the screen, one only when the movement was rapid, and three when the pictures were shown continuously. The chief causes thus appear to be the foulness and high temperature of the atmosphere, and the movement of the film. While the trouble arising from the latter can be minimized by occupying a distant seat, it would seem from these returns that oculists will soon have a new condition to deal with, the moving picture eye, or *movingpictureitis*. Watching objects which are constantly shifting is a severe tax on the eyes, as tourists on express trains are well aware. This menace of the moving picture must be remedied if it is to become an abiding educational instrument. The strain on the eyes may possibly be lessened by decreasing the rate of the movement and keeping the spectators farther away from the screen. The flicker which is so apparent in the cheaper films should be totally eliminated. It works positive injury to the retina.

Curiously only four of the answers were negative; so that practically in every case attendance upon the ordinary moving picture theatre produced some unpleasant bodily effects. It should be borne in mind that these students were by no means moving picture fiends; eight of them had attended about once a week during the summer, five were attending about once a week at the time, seven once or twice a month, while fifteen had attended less than six times during their lifetime. Many did not care to attend them because of the headaches or eye-strain, or because of the trivial, disgusting, silly, unnatural or exaggerated character of the subject-matter, which was "neither funny nor interesting but silly stuff." Moving picture managers might increase their patronage by presenting views that are *genuinely* amusing, comical, entertaining and educational! But, alackaday! frequently the pictures are not only trivial, silly or disgusting, but positively revolting and pernicious in their suggestions—of this more anon.

The most serious problems created by the moving pictures are moral and social. The moving picture show has been referred to as a "new moral leprosy" which, unless brought under strict control, will weaken the moral fibre of the race. Here again we must rest content for the present with the scanty facts at our disposal, rather than dogmatize *a priori*.

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[1] The statements of the "causes" or reasons were *volunteered* by the students, and hence have no quantitative value, as some ventured explanations but others not.

Many picture theatres are located in environments that are forbidding. The Cleveland Humane Society found a show, frequented by boys and girls, which connected directly through a passageway with a saloon. Liquor passed freely between the saloon and the theatre. One theatre was located beneath a disorderly house, the entrances to both being side by side. In many places the vaudeville acts, songs or pictures were objectionable, owing to their unclean, indecent, vulgar or revolting suggestions. The committee examined 290 different films, and saw fit to condemn 40% of them as objectionable. The objectionable features, in the order of prevalence, were as follows:

Stealing,	13.4%
Murder,	13.1%
Drunkenness,	13.1%
Indecent suggestions,	8.2%
House breaking,	7.2%
Loose ideals of marriage,	6.5%
Domestic infidelity,	5.8%
Vicious mishief,	5.8%
Suicide,	3 films
Kidnaping,	2 films

Here is a motley array of subject-matter calculated to appeal to the baser elements in human nature! The conditions found in Cleveland are probably typical of the larger cities the country over, except where there is a system of rigorous censorship of the films. Such a system is merely in its incipiency at present. Rigorous censorship of moving picture films, under state or municipal supervision, would tend to purify the subject-matter of its grosser forms of vulgarity, indecency and blaspheming of sacred institutions. But its influence would be destructive rather than constructive; negative rather than positive; for while it would exclude some of the positively pernicious views, it could do nothing to compel theatre managers to put on views which are positively good, which are genuinely illuminating and educational, really humorous and entertaining without being travesties on moral and civil codes and institutions, and refining and ennobling. To trust to the theatre managers and moving picture public for a positive reform and improvement of the views would often lead to disappointment. Man still has so much of his brute ancestry in him that his judgment is largely suspended when his animal passions are aroused. It is surprising to witness how women even will call for encores of acts in burlesque shows that are so revoltingly indecent as to make a disciple of the 'life of reason' actually sick to behold them. There are no fires that burn so fiercely within the human breast as the fires that are fanned into action by arousing the instincts of the brute man. In contagions of suggestion reason is temporarily dethroned, and men and women will follow the mob wildly in its deeds of rapine, destruction and murder. The pictures in the ordinary shows saturate the minds of the spectators with suggestions of stealing, house breaking, murder, pillage, kidnaping, drunkenness, levity, indecency, social vice, domestic and marital infidelity, elopement, playing pranks, etc. These suggestions often lead to the corresponding actions, according to the known principle in psychology of dynamogenesis, or ideo-motor action. According to this principle the mere thought of a movement is an incipient movement. All thought is motor in tendency. It tends strongly to innervate some muscle or gland. Thus it is that the mere thought of a watermelon may cause the saliva to flow; the mere thought of a lemon will produce a scowl; the mere thought of vinegar tends to cause the mouth to pucker; the thought of a high steeple tends to cause the eyelids to open wider; the bare perception of a knock may cause the head to turn or the leg muscles to grow tense; the mere attention to a thing may cause us to move toward it. It is thus that we often bump into people we meet on the sidewalk, or collide with a bicyclist when our attention is riveted upon the one or the other. We *tend* toward the things we *attend* to. The circuit of thought is not complete until it has produced a motor reaction or a tendency to react. The unit of nervous action is the sensory-motor arc; perception unless obstructed discharges itself into action. It is therefore clear that a moving picture is an incentive to action; a direct challenge to its imitative reproduction. The fact that the imitative reproduction does not follow the perception directly is immaterial to the argument, because the perception may occur later in the form of an image or idea, and the idea, if there are no inhibiting ideas or circumstances present, may then possess the same dynamogenetic tendency.

Newspaper items have made us sufficiently familiar with the grave dangers involved in suggestions derived from moving pictures. We read of how a young swain and lassie conceived the idea of eloping from a moving picture representation of a successful romance that fired the youthful imagination; how a man received in the picture show his first lesson in purse snatching, another in pickpocketing, another in shoplifting, another in burglarizing a tenement house; how a man got his cues as to how to hold up and rob automobiles; how another got his tips from the film on how to flirt with a neighbor's wife, etc., etc. Our knowledge is very inadequate as yet concerning the real significance of the moving picture in suggesting pranks, tricks, misdemeanors, unheard-of escapades and crimes. Owing to the extreme license which is permitted in the matter of presenting all manner of subject-matter, there is no trick or method known to the professional crook, villain or jester that may not be vividly demonstrated to the susceptible juvenile or the viciously inclined adult mind. Hence moving picture shows may become veritable training schools of mischief, mockery, lawbreaking and crime.

We stand in sore need of an exhaustive study of the effects of suggestions derived from moving pictures upon the subsequent conduct of the spectators, old as well as young. To secure some such facts, the writer asked the psychology students referred to above to write upon the following question: Have you ever seen, heard or read about children and adults *acting out* the ideas or suggestions conveyed to them by moving pictures? The tabulation of the answers gave interesting results. Twenty-nine of the replies were negative, eight doubtful, while all the others reported instances where they had personally observed or learned through report that the suggestions had resulted in the performance of the acts which were pictured. Seven of these related to the playing of jokes and pranks, five led to acts of stealing, four to a desire to do as the picture actors did, and two to fighting. It will be of interest to reproduce some of the replies.

"Pictures with a good moral leave me with a desire for a time to act in accordance with the moral. I saw a picture depicting self-sacrifice, and for a time I did the unpleasant duties more willingly. Rather than allow my little sister to fail in arithmetic the next day I sacrificed my interest to hers, and accordingly I 'flunked' in general method the next day. This came near spoiling the good effects of the picture show." "Once I saw a moving picture showing a poor family, the father out of work and the children crying at their mother's skirt. The woman was offered assistance by a rich man who took her away. Soon afterwards her husband returned with plenty of provisions and a position. This picture was so pitiful as to make me resolve that under similar circumstances I would never leave my family." "My brother got the skeeing mania from seeing pictures of skeeing in Switzerland. He has made a pair of skees, and is now learning to use them. I have seen several boys making models of aeroplanes after having seen flights of various kinds of airships at a show." "I have observed my little sister exactly imitate pictures in playing show, but the morals taught have made no impression, owing probably to the fact that she was too young to comprehend." "A little boy about three years of age was with us one evening to a picture show. One picture particularly attracted his attention, a representation of acrobatic performances. When this little boy went home he tried very hard to go through the same movements." "I have seen children act out war scenes, tricks, and reproduce new steps in dancing." "My little nephew always tries to reproduce actions and grimaces which he has seen." "A little boy I know delights in pictures of Indians and cowboys, and tries to imitate them. Once he saw an Indian who was creeping stealthily on hands and feet toward a white man in order to kill him. He had a short knife in his mouth. One day I saw the little boy going through the same actions. He also imitates soldiers. He makes swords of wood and pretends he is fighting by brandishing them at the people about him." "A boy about ten years of age saw a picture of a boy of his own age fighting with his big brother. Now he is always looking for a fight with his older brother. He tries to trip him as he saw the boy tripped in the picture." "A few children went to a picture show and saw an April Fool joke. Different ingredients were mixed into a very disagreeably tasting pudding, which was dispensed to the unwary. The children followed suit when they reached home, making some candy containing mustard, pepper, etc." "I once knew of two boys who saw a couple of boys in a picture scatter pepper about. When they came home they threw pepper around, and created quite a havoc." "Once I saw a picture called 'circumstantial evidence,' in which a boy to make his mother angry smeared jam on a cat's paws, and put hairs from a blonde lady on his father's coat. When I came home I immediately did the same thing to my father's coat, with the result that the same unfortunate thing happened to me as to the boy in the picture." "I have frequently heard of boys committing pranks which, on enquiry, they said that they had learned at moving picture shows." "I have heard of boys enacting the street-chasing scenes, falling over boxes, etc." "I know of a young lad who suddenly formed the habit of playing practical jokes in the neighborhood. His father discovered that his taste for this had been acquired in moving picture shows. One of his favorite amusements was to send in fire alarms by telephone; another, to ask the police sergeant to dispatch aid to a certain house. His companion refused to attend school as he insisted that heroes in the moving picture shows always obtained their 'good fortune' by roaming about in search of adventure." "I read about a small boy who had seen a theft committed in a picture, without the thief being apprehended. About a week later he committed the same crime by the same methods, but was caught and arrested." "Two little girls had seen in a picture how a woman taught a little girl to steal. Later they went into a store and stole little articles, and were caught.

They confessed that they had received their cues in a picture show." "I have several times read of boys who have been stimulated by moving picture scenes to become desperadoes, committing theft and sometimes even murder." "A girl saw in a picture show how a girl ran away from home. This induced her to run away also. When found she explained that the idea had occurred to her from seeing a picture in which a girl ran away, and in which everything turned out all right."

That the moving picture shows may prove a serious menace to the morals of the community and the healthy development of the social organism, is a conclusion that stands out from this limited investigation. More exhaustive investigations will probably emphasize rather than weaken the weight of this conclusion. These shows, enjoying as they usually do, a full measure of unbridled license, may become veritable centres of psychic infection, infecting the imagination with suggestions of all sorts of mischief, waywardness, delinquency and crime. This is particularly true in view of the fact that a large percentage of the spectators are children, who are known to be hyper-suggestible; in the Humane Society's investigation in Cleveland it was estimated that 20% of 10,000 in attendance at the evening shows inspected were children. But the seriousness of the mischief which may result from these shows only emphasizes the vast potential good contained in the cinematograph. Properly regulated it is an inexhaustible fountainhead of wholesome entertainment and valuable information.

I am well aware that in the attitude which I take toward the suggestive power of moving pictures, particularly their power to arouse similar reactions in the practical workaday affairs of life, I am flying directly in the face of Aristotle's venerable doctrine of catharsis. According to Aristotle the mind is purged of base passions and desires by seeing them represented vividly on the stage. By seeing a stage representation of acts of villainy, treachery, conjugal infidelity, murder, etc., the mind lives out these acts in the imagination, and is thus cleansed of the desire to realize them in reality. A slight indulgence is thus an act of purgation and immunization; little renderes us immune for much, just as we inoculate the animal organism with small doses of various antitoxins or vaccines and thus render it immune against various infectious diseases. Similarly we may render the psychic organism immune against various mental contagions by innoculating it by mimic and pantomimic representations of individual delinquencies and social vices and diseases. Hold up vice and evil in all its naked horror and alluring enticement behind the footlights, so that the base passions may live themselves out in the imagination of the spectators, and thus consume all their energy! This doctrine, however attractive it may seem, will not, I believe, stand the test of careful scrutiny or of an inductive examination of the known facts in the case. The psychological principles of dynamogenesis, suggestion, instinctive imitation and psychic contagion give us a more reliable clue to the effects of vivid picture presentations. It is of the essence of ideas to work themselves out in corresponding movements. To indulge a passion is to stimulate or incite it to further indulgence, rather than to subdue it. While this conclusion seems to be theoretically justifiable and psychologically defensible, the real test of the question is the test of fact. Do moving picture representations of mischief, misconduct, impropriety, delinquency and crime ever actually incite to mischievous, objectionable and reprehensible conduct? We have offered a little evidence to indicate that this is not infrequently the case.

The moral aspects of the matter leave a vital problem which state and municipal governments and school administrators cannot afford to shirk. Public show places, or the manufacturers of moving films should be subject to routine inspection and censorship, and all such films as tend to arouse antisocial and criminal tendencies and base passions should be suppressed. Public films should at least be made negatively wholesome or morally innocuous. But the public schools should do their part to cater to the children's instinctive cravings for the powerful stimuli which the moving film affords, by providing at regular intervals lessons based on wholesome, entertaining and educational moving pictures. The censorship which the schools can exercise in the character of the subject-matter is absolute. To divert the child from the public show places is frequently to rescue him from an environment which is rarely ideal from the point of view of child psychology, and which not infrequently becomes a latent focus of moral contamination, and an insidious breeding-ground for a debauched citizenship.

THE MECHANISM OF THE VOICE AND ITS HYGIENE

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Some twenty-five hundred years ago, when the anti-vivisection society held sway and it was commonly believed that food passed down the windpipe on its way to the stomach, there lived a physician whose name was Hippocrates. Before he died, he announced to the world the difference between the windpipe and the gullet. How he made the discovery the world never knew. He presented his theory in the form of an argument but so correct was he in his anatomy, that we now know he probably made his discovery behind doors, locked and barred, with the kindly aid of a feeble light and, it may be, a stray cat. However true this may be, we do know, for we have the record, that he was much interested in the mechanism of the voice, for by its sound he was accustomed to judge much of a patient's condition.

We have improved on his diagnosis but we still say the voice is tired, weak or hoarse, or it is rich and vibrant, strong and virile. Voices are restful or stirring, quiet or thrilling; they quiver in passion in anger or fear, tremble in sorrow and shout in joy; are tender in sympathy, sharp in rebuke, piercing in strife. The voice of the child is shrill and piping, of the miser is hard and rough, of the villain is coarse and rasping, of the orator is clear or clarion, muffled or thunderous. They are thick or thin, soothing, gentle, cooing, insinuating. Is it any wonder a great philosopher reasoned that out of the desire of man for the expression of his feelings, language was born?

The secret of it all is doubtless a motor law. As we listen we unconsciously re-enact the muscular movements which produced the sound. The man who in great physical pain utters a groan, can only do so by first closing his glottis, behind which a column of compressed air is forced; then, the door suddenly being opened, the column of air rushes forth through tensed and constricted larynx and the hoarse guttural, followed by the long "o" results. We, as we hear, suffer also. On the other hand, the beautiful "a" of the Italian or Spaniard can only be reproduced, in its purity, with every muscle relaxed. The story is told of a man of letters who sent a note of condolence to a brilliant friend who had recently lost her husband. His letter was simply, "Oh, Madam." After due time she remarried and he, in the letter of congratulation, wrote, "Ah, Madam!" This story is true enough to be true. We react to just this sort of thing many times each day. One who is in the least motor-minded in his speech, feels the throat ache after listening to a so-called orator literally tear his throat. Nerves tingle from the piercing voice of the woman George Eliot describes as talking in the key of G sharp, and we readily agree that the quiet, soft, well-modulated voice of the well-poised teacher, will do more to insure the restful atmosphere of the schoolroom than the strident scolding so often perpetrated on the ears of quivering children.

It has been said that of all cultured peoples, the voices of Americans are the most unpleasant. The voices of cultured Italians and Spaniards are music itself, and even the French nasals and the gutturals of the north German are preferable to the flat vowels and high-pitched, twangy voices of the usual American, the direct result of the tension under which we work and carelessness, perhaps, of these finer things.

All this by way of introduction. It is enough, perhaps, to recall the close connection between the speaking voice and the nervous system, and it offers an excuse for the rather technical discussion which must follow—that of the mechanism of the singing and speaking voice; a mechanism that must be delicate to do the work required of it, and one that suffers from abuse. Its hygiene is largely that of the whole body, though in some respects it has a hygiene of its own.

The human voice may be compared to a wind instrument; in some respects like the clarinet, in one, like the flute and again, as regards the shortening and thickening of the reeds or strings, like the violin. Such an instrument must have three distinct but co-ordinating parts: a bellows to produce the blast, a vibrating reed to produce the initial tone, and a resonance chamber to amplify the vibrations and the overtones. The last of these may call for a little explanation. In a horn the resonance chamber is the tube, ending in a flared-out portion called the bell. In a violin it is the peculiarly shaped box, across the top of which the strings are tuned. It is the shape of this tube or box which gives the instrument its peculiar tone or *timbre*. This is due, as Helmholtz has proved, to the presence or absence of overtones. These overtones, it will be remembered, are caused by the vibrations of segments of the string or column of air that produce the fundamental tone; for instance, if we stretch a string two feet long so that, when set in vibration, it gives the pitch of c (256 vibrations per second), the string will divide itself at a nodal point, exactly half of its length, and in addition to the original tone, we get a tone an octave higher, *i. e.*, a tone double the number of the original vibrations (c=512). The string also divides in thirds, fourths, etc., giving the fifths and thirds and so on. These overtones multiply. Helmholtz was able to hear sixteen different sounds through the vibration of a single string. Now to return to resonance, we find the resonance boxes differ in their ability to amplify or strengthen certain of these overtones. We therefore have instruments of different quality.

The human voice is, as we have said, a wind instrument. Its bellows is in the lungs and muscles of respiration, its vibrating reed consists of the vocal cords set in a small box called the larynx. It has two resonance chambers: one beneath the vibrating reeds in the thorax or chest, the other above the reeds in the naso-pharynx and nasal cavities. The mouth also ought to be added, for perhaps it is the real "bell" of the instrument and it is largely due to its changeableness, and the use of tongue, lips, teeth and palate, that certain qualities are possible. The problem, then, in the correct use of this instrument, is one of control and the proper co-ordination of each of its parts.

The first element in the control of the voice lies in the bellows, or as it is called, "breathing." Baginsky speaks at length of this factor. The column of air must not press too strongly on the vocal bands; the tension must not interfere with the proper adjustment and vibration of the reeds. Control of voice is control of breath. How can this best be accomplished? If we fill the lungs comfortably and hold the breath, we can do it in two ways: (1) by closing the glottis at the mouth of the windpipe, an action which takes place when we attempt any violent physical exertion, and (2) by leaving the glottis open and holding the breath with the intercostal and abdominal muscles. For voice use the former is quite wrong for the tension is then on the vocal mechanism. If we can keep the tension in the muscles of the chest and abdomen, everything above may be relaxed, which is important for the production of an easy speaking or singing tone. There are as many theories of breath control as there are teachers to teach them and we do not propose to get mixed up with them. Admirable treatment of these methods may be found in Behnke, Curtis or Mills. We can state, however, the principle upon which all are based. It is of course necessary to use every available inch of the lung space. While deep breathing is essential, it is just as important to use the upper portions of the lung. At the same time, too much breath must not be taken, else there will be additional strain on the walls of the lungs themselves. If we raise the chest by drawing in the abdomen and then fill the lungs comfortably, we can feel the lower ribs pushing out against the clothing. The problem then, is simply one of keeping the chest up and holding the ribs out, for if they are allowed to collapse, the breath will be forced out faster than is needed. It sounds easy but is difficult because the muscles must be trained to hold. Tight clothing of course makes the process all the more difficult. It is remarkable how little air is necessary for even a singing tone. There is a tradition that the old Italian masters (who produced vocalists the like of which we do not hear to-day) required their tenors to run up three flights of stairs and then sing a tone in which so little breath was used, that a light feather would not flicker when held to the mouth. It is impossible to get a pure tone with poor control; too much air means that some of it mingles with the vibrating column, and a breathy tone is the result.

The second factor in the vocal apparatus and by far the most intricate, is a series of bones, muscles, membranes and ligaments which go to make the voice box or larynx and the vocal cords. We shall not go into a technical description of this apparatus which may be found in any physiology or book on the voice. It is enough, perhaps, to say that the larynx is a short tube, three-cornered above and cylindrical below, which is situated on top of the windpipe. It can be easily moved from side to side and moves up and down in speaking or singing. For this reason, high and tight collars which interfere with its natural movement, are injurious.

Within this box are the vocal ligaments called in English, the vocal cords, a very poor name, for they are not cords. The German names *Stimmlippen* or *Stimmbänder* are better, though they are not lips or bands. Behnke uses the word "ligaments," which is better, in that it does not raise a false image (3, p. 59). These bands or ligaments are stretched across the windpipe so that the inside edges, when struck by a column of air, can vibrate; on the outer edges are stronger bands known as the "false cords" as distinguished from the "true cords." The length of the true cords varies. Gerber (6, p. 31) gives the lengths as follows:

In the child	9-10 ½ mm.
In the mature woman	12-15 mm.
In the mature man	14-21 mm.

Behnke (3, p. 61) gives the length in man as ¾ of an inch, and in woman as ½ inch. Gutzmann says the cord in man is one-third larger than in the woman.

This brings us to the subject of "Registers," the most difficult of all, and concerning which there is a wide variance of opinion. The term is a technical one, which many persons of the genus Malaprop manage to use wrongly, *e. g.*, it is often confused with "range" or limits of pitch; again, it is made synonomus with quality, or sometimes it means nothing at all. A recent newspaper account described the voice of a famous singer by saying she had a "wonderful register." The reporter was perhaps thinking of a hot air furnace. The term really means "an adjustment of a mechanism by which a certain series of tones is produced." The necessity for such a contrivance is quite evident. Suppose we say that the limits of pitch in a single voice are two octaves apart; the adult man must produce these tones with a vocal cord ¾ of an inch long. If we go into the physical laboratory and try to get 128 vibrations with a string or band ¾ of an inch long, and then with the same band try to get 256 vibrations, and then 512 vibrations, we shall begin to appreciate the problem. And when we remember that in a piano it takes a thick string approximately five feet long to produce the low tone corresponding to the low tone of the man's voice, and a thinner string some three feet long to produce the upper tone, we shall begin to see the necessity of some unusual and extraordinary mechanism. For the low series the vocal bands are long and thick, in a higher series they are shorter and thinner, in a series still higher the edges are brought together for half their length. These adjustments, then, are the different registers. We have put the matter rather simply and should be more specific.

The registers were never understood until the invention of the laryngoscope, usually credited to Garcia, who made his first report in 1855. But even with the aid of this instrument, which may be described as a system of reflectors, the reports of observers differ widely. This is due to the fact that the action of the cords can only be seen in a mirror, that the movements are very rapid, that the subject producing the tone must always have a small mirror placed in his pharynx, and last of all, to the different degrees of voice culture of the subjects. It ought to be emphasized here that the boundaries of these registers are not fixed—that is, they do not arbitrarily change adjustments at any one pitch; hence the conflict of opinion. Behnke and Seiler also, recognize five different registers: a lower thick, upper thick, lower thin, upper thin, and small, the last two being found only in the voices of women and children (3, pp. 163, ff.) Many voice teachers recognize these five registers. On the other hand Mandl, Bataille, Koch, Vacher, Martels, Mackenzie and Baginsky say there are but two. The first five of these are quoted by Curtis (5, p. 112), and Baginsky probably made no observation of his own. Gutzmann decides that there are three, with an occasional fourth—a flute-like tone—resulting in an occasional voice; these he calls, chest register, middle register, head register and falsetto register. If now, in the case of tenors, we may substitute the falsetto for the head register, modern teachers and writers will agree with Gutzmann; such is the conclusion of Marchesi, Randagger, Mills and Curtis. Those who insist on two, combine the chest and middle registers. Mills concludes his discussion by saying (10, p. 165): (1) "All agree that there are registers, or natural changes of quality of tone, corresponding to changes of mechanism or method. (2) All, with the exception of Madame Seiler, agree that the most important changes take place at or near 'a' (above middle 'c') in female voices, and the majority consider that this applies to both sexes equally. (3) Often in males, there is some laryngeal change lower than this. (4) All agree that the high falsetto is of special quality, produced by a mechanism of its own; *i. e.*, all consider it as a separate register, and often, at least, it begins naturally at about "f" sharp. The point of greatest strain is generally about this point for both sexes, and many persons cannot sing higher than this." There is an octave's difference, of course, between the sexes.

As to what happens in these registers, authors are less clear. All agree that in the lowest notes the glottis is open, the vocal cords far apart, and that they vibrate from end to end. As we approach the middle register (the pitch varies in different voices), either the cords divide into unequal segments, or flatten out, becoming thinner and shorter. In the head register, the cords are drawn close together, apparently uniting for a portion of the way, so that only the remainder of the cord can vibrate. Some authors insist, that under these circumstances, they do not vibrate at all, and that the sounds of different pitch are produced by the shape of the tube, as in a flute. It seems quite evident that while, as Mills says, all observers agree that certain adjustments do take place, they are not at all sure of their ground, when it comes to explaining exactly what happens. Fortunately, we do know enough to lay down certain principles as to the hygiene of the larynx, which will be discussed later.

There are one or two problems which ought to be considered here. Baginsky says, that in the matter of tension, tenors naturally suffer most, altos next, basses follow, and sopranos least of all. This is contrary to the usual impression, and, if true, is of considerable importance. Ordinarily, we think of basses and altos as having practically the same mechanism, and of tenors and sopranos as being alike, except for the octave's difference due to the sexes; and it is commonly believed that voices differ in pitch because of a difference in the size and thickness of the vocal cords. It is true that there is a difference between the length of the cords of men and women. Grützner says, "The voice of the woman is softer than the voice of the man, because her voice cords are more delicate and the action of her throat muscles is more rapid and less vigorous'' (7, p. 89). We have already seen that there is a difference of about ¼ of an inch in length, which implies, of course, a difference in the size of the larynx. So far, it is clear enough. But when we compare the vocal cords of bass and tenor, or of alto and soprano, we do not find these differences. Behnke says, ''It is true, that as a rule, the vocal ligaments of soprano and tenor are shorter than those of contralto and bass; but it is also true that sometimes the very opposite is the case'' (3, p. 75). The only possible explanation, in these cases, lies in the size of the trachea and the larynx; for, if these be smaller in calibre and shorter in length, the tone will of necessity, be higher in pitch. In which case there would be no greater tension in one voice than in another. The real distinction between bass, tenor, alto and soprano, is not only one of pitch but also one of quality; and this, as we have already seen, is largely a matter of resonance. The opinion certainly seems to be justified, that the calibre, the length of the tube, and the size of the resonators, is of far more importance in determining pitch than has been recognized. At any rate, it would be exceedingly interesting to see some measurements correlating the size of the vocal bands and the size of the tube. So far as we know, no such study has, as yet, been made.

There are certain variations in the larynx due to age and sex. The larynx of a newly-born baby is about one-third that of an adult woman; it grows rapidly for the first three years, and less quickly up to the sixth, where it remains practically stationary until puberty. There is also a gradual development of pitch from the first to about the fifteenth year. At this time, there is often a sudden development known as mutation, or change of voice. In girls, it is slight, the increase in range being not more than a tone or two; but in boys the change is more marked. Often the change is gradual, and in the case of some tenors, is scarcely noticed. In boys who are destined to be basses, the voice drops in pitch, from an octave, to an octave and a third. According to Gutzmann, the vocal cords increase one-third in length. Brown and Behnke say, ''The larynx in boys alters in the proportion of 5-10, and in girls of 5-7; the larynx, at this time, is more or less red, and the tissue loose. The vocal ligaments increase not only in length, but also in thickness. In boys, the shield cartilage loses the gentle curve, and forms the prominence known as the 'Adam's apple;' the larynx, in its entirety, increases more in depth than in height, with the result of adding to the length of the vocal ligaments, thereby producing lower tones." At this time boys often lose control of the voice; a tone begun on a lower pitch suddenly slides into the octave above; as Gerber puts it, "*Sie schwankt zwischen Himmel und Hölle.*" The cause may be in a breaking down of old co-ordinations and the establishment of new ones, or it may be due to the unequal development of parts. Paulsen found three, among 254 boys, 12 years of age, whose voices had begun to change; at 13 years, of 256 boys, 27 were changing; at 14 years, of 291 boys, 95 were changing; and at 15 years, of 260 boys, 135 were in process of changing, while one voice was settled (12, p. 410).

As may be expected, there is a close connection between the voice at this age and the general awakening of the adolescent. President Hall says: "Speech, music, cadence, rhythm and perhaps, rate of utterance, are reconstructed. Many bad habits, some suggesting arrest, are settled into. Voices become nasal, throaty, coarse, aspirate, guttural. Vowelization lacks resonance, or pronunciation is slovenly, etc. In common conversation, young people often seem playing on the voice, as if to explore its possibilities in all directions. In all these respects the voice, at this season of change, is very responsive to bodily states, reflecting the general tone, mood, sentiment, feeling and state of health, as at no other age of life" (9, p. 31).

There is much discussion as to the use of the voice at this time, especially in singing. Individual differences are so great, that even in the judgements of men who have passed through the experience, there is a wide variance. Behnke and Brown received 190 replies to the question whether it is safe for a boy to continue singing while his voice is changing: of these, 158 say that it is decidedly not safe; of the others, some say in their own experience that they sang through the period without any difficulty; others, that if singing is moderate, no harm can be done; a few never noticed any change of the voice. From this it would seem that if there is no break, singing may possibly be continued; while if there is a break, singing for a time is impossible. The authors conclude by saying,—"The bulk of the evidence most strikingly proves the injurious and even ruinous consequences arising from the exercise of the voice, by singing during the period of change" (2, p. 73 ff.). They conclude also that the voice training of girls should not be commenced until the system is well settled after puberty; *i. e.*, from about 17-19 years of age. Much, of course, depends upon the general physical condition.

Vocal Resonance. We now come to the subject of resonance, a subject, most important, and one, in the case of speakers, especially, often overlooked. Yet, in nature, it is a frequent phenomenon. Tyndall says,—"The sound heard when a hollow shell is placed to the ear, is a case of resonance. Children think they hear in it the sound of the sea. The noise is really due to the reinforcement of the feeble sounds with which even the stillest air is pervaded, and also, in part, to the noise produced by the pressure of the shell against the ear itself.'' A vibrating tuning fork may be made to sound like a full chord, if properly reinforced; a voice naturally weak, may be improved in both quality and volume, most certainly in carrying power, if its natural resonance be utilized.

We have already said there are two resonance chambers in the human voice; the upper chest and trachea, below the larynx, and the mouth and nasal cavities, above the larynx. The lower one is, apparently, of less importance, and we shall not stop to discuss it, though it must be remarked that the terms, ''chest-register'' and ''head-register,'' have nothing to do with resonance. The series of tones comprising the chest-register were so called, because they seem to come from the chest; and the head-register, because the tone seems to be up in the head. This is merely a matter of sensations which the singer or speaker feels. Every tone, be it high or low, must be and is reinforced in both the chest and the head.

The upper resonance chamber has been likened to the bell of a horn; but in the voice it is a most wonderful bell, because of its flexibility, its power to change its shape, to assume so many positions and produce tones of so many qualities and emotional characteristics. We are not only able to produce vowels and consonants, but we are able to give these different tones colors or qualities which give them different meanings. A most important phase, however, is, that just as proper breath control has much influence on the proper activity of the delicate muscles of the larynx, so also, does proper use of the upper resonance chambers.

The factors involved are the lips, the teeth and gums, the hard palate or the roof of the mouth, the soft palate terminating in the uvula, the pharynx or throat, and the naso-pharynx which lies above the pharynx and back of the soft palate. On the floor of the mouth lies a most intricate affair, made up of several muscles of different attachments so that it is extremely movable. Mills says, ''To say that it can, with the greatest ease and rapidity, be turned toward every one of the thirty-two points marked on a mariner's compass, is but to feebly express its capacity for movement.'' This may be also, in the last analysis, a reason why the tongue is so unruly a member. What concerns us most, however, is its power to alter the shape of the mouth cavity in every part, so that with each vowel, each consonant, each sound quality, the floor of the mouth is changed in shape, producing a different resonator.

It has been only within the last few years that the part played by the nose, in singing or speaking, has been recognized. This, in spite of the fact that in case of a bad cold, it is evident enough. It is here and in the naso-pharynx, that the overtones of the voice are produced, and it must be remembered that it is the presence of overtones that gives some voices their brilliant and ringing quality; without them, the voice becomes dead, mouthy, wooden. The nasal cavities are broken up, as it were, by projections of bone known as the spongey or turbinated bones, three in each passage. The mucous membrane covering these is very vascular. Scripture says that the character of this membrane is as important for resonance as the shape of the resonators. Curtis quotes Jean de Reszke, the famous tenor, and now one of the first voice teachers of the world, as saying, "I find the great question of the singer's art becomes narrower and narrower all the time, until I can truly say that the question of singing becomes a question of the nose."

The teeth, gums, hard palate and nasal bones constitute the fixed structure, and they determine in no small measure, the shape of the resonance chamber; but it is the work of the movable parts, especially the soft palate and the tongue, to increase or modify the shape of the fixed structure so that the resonance is increased or modified, thus varying the quality and even the volume of the voice. It is to the proper adjustment of the back part of the tongue and of the soft palate, that the proper focusing of the column of vibrating air is due; this column of air, or the voice, ought to be so directed that it will strike the hard palate or sounding board well forward—some say on the lips; at the same time, the soft palate ought to be so relaxed that the air in the naso-pharynx and the nasal passages will vibrate, thus giving brilliancy to the tone. If the soft palate and uvula are drawn up tightly, the nasal cavities will be entirely closed and a throaty tone will result; on the other hand, if the soft palate be entirely relaxed and the back of the tongue raised, the mouth will be shut off, and the tone will go through the nose. The nicety of adjustment demanded for the production of a correct tone, can only be learned by trial and error, *i. e.*, by practice; but for the speaker or singer, it is well worth learning, because not only does it mean a sympathetic voice, but one that has greater carrying power with less strain or tension. The act of drawing up the uvula alters the position of the larynx and tightens its muscles when they ought to be free; the tightening of the back muscles of the tongue has the same effect. All the muscles controlling the lower jaw ought to be relaxed or free.

The man who talks through his teeth, does so with a tight lower jaw.

The use of the lips and the tip of the tongue is of course important in enunciation, and to an extent, in the shaping of the resonator, but as they have less hygienic significance, we will not stop to discuss them.

THE HYGIENE OF THE VOICE

We have tried to suggest the different activities of the voice and to show their interdependence, one upon the other, that its hygiene might be more evident. We shall take up its hygiene in the same order in which we have discussed its mechanism, though we shall find the relationship between parts is so close, it is difficult to consider one without considering its effect upon another.

First of all, let us note the difference between the act of singing and of speaking. The same mechanism is used in both and so far the two have been considered as one; but, if we may put it in a broad way, singing is the much more violent exercise of the two. The essential difference is this: in singing, we sustain vowels longer and cut consonants shorter; from the hygienic point of view, this is the only difference, but this implies greater breath power and control, and greater tension of the muscles in the larynx. In learning to sing, the problem is to hold the muscles steady. This greater strain, which, even in the most cultivated singers must exist, makes of singing a power for good on the one hand, and of evil on the other. For good, in that more air is taken into the lungs and the lungs are more nearly emptied; the muscles of the throat, if properly developed, gain in strength and in endurance; there is in addition, a psychic effect from wholesome singing, which is good for the organism. All this, Baginsky says, makes of singing a splendid gymnastic exercise. However, if the strain is too great, if the lungs are weak or not well developed, if there be chest troubles, if the muscles of the throat should be inflamed, then singing, at least for any continued duration, may be a positive injury. In other words, in the strong as in the weak, over fatigue is always to be avoided. This is simple enough, but an hygienic law that is too often entirely disregarded.

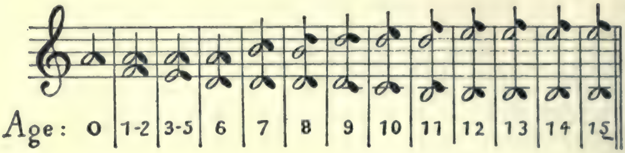
It should not be forgotten that in singing or in public speaking, the air strikes through the vocal cords under certain tension differences, than in ordinary breathing; also, the inspiration is more rapid and the act of expiration more prolonged; which means that more air is passing through than under normal conditions. Baginsky lays great weight on this. He says, "This influence is shown through the cooling and drying of the vocal organ; the compressed air possesses a higher temperature and a higher saturation point; it becomes filled with moisture from the mucous membrane; the louder one speaks or sings, the dryer the atmosphere of the room, the greater the demand on the mucous membrane for moisture, and so, even many practiced orators like to have a glass of water at hand while speaking.'' There are other influences, however, which contribute to this throat dryness; straining of muscles means greater heat, perhaps congestion; nervousness is another factor. Ordinarily, if the voice is used properly, and the body is in good condition, the secretions of moisture are sufficient. Much water drinking while speaking is a habit, often unnecessary, and from the point of view of effect, an unfortunate one.

It hardly seems necessary to say that the air should be pure, free from dust; that the air should be of the proper temperature, neither too warm nor too cold; that in any case, it should be warmed and filtered through the nose, though the latter is impossible at times, while actually singing or speaking. One hesitates to say that the clothing should not be too tight, or bands or collars about the neck, too close fitting. These are the self-evident things, in every book, yet of the utmost importance.

The hygiene of the vocal cords is one less frequently discussed, probably because it is more difficult. There are two elements to be considered: (1) The initial attack of the tone; when the attack—*i. e.* the beginning of the tone—is in the larynx, as when we say ''e'' as pronounced in ''ear,'' it is called the ''*Coup de glotte*'' or stroke or shock of the glottis. ''This use of the voice, if persisted in,'' says Curtis, ''Gives rise to what is called singer's 'Nodules:' the vocal cords assume a convex contour of the margins, tending to converge in the middle; sometimes a nodule appears on one or both of the cords. Either the cords are being used with insufficient tension, or the internal adjustment by the thyro-arytenoid muscle is faulty, for the latter condition would cause an improper plan of vibration.'' On the other hand, if the attack be breathy, such as one produced by forcing the breath through the cords, following with the sound of long ''o,'' the cords often assume a concave contour of their margins. Such are the inevitable results of guttural, throaty, breathy speaking or singing. They can only be avoided by a smoother attack and one farther forward in the mouth, with due attention to breath control. The French singers last longer than any other singers in the world. It is largely the result of the fact that the very production of the nasal sounds in their language, preclude the attack on the glottis.

The second factor in the hygiene of the vocal cords, is the forcing of the singing voice beyond the proper register limits. Suppose we say, arbitrarily, that the upper limit of the chest register is "a," (second space), this, then, will be the lower limit of the middle register. Now, it is possible to force the chest register four or five or even six notes higher; likewise, the middle register can be used below "a," its lower boundary. The same holds true with the upper boundary of the middle and the lower of the head register. *The danger in forcing is always in going up, never in coming down.* In other words, it does no damage to take an upper register below its lower boundary, but it is dangerous to take a lower register above its upper boundary. For this reason, all good voice builders commence with the top story and work down. There are voice teachers who never mention registers to their pupils; they try to avoid register difficulties by insisting upon easy singing, under which conditions the register adjustments usually take care of themselves. It is easy to see that if the vocal cords are strained by a column of air forced against them, they cannot act normally. The two rules for the laryngeal hygiene of singing are therefore: (1) sing easily, without strain or effort; (2) avoid forcing the upper notes of the different registers. It is difficult to obtain these in the schoolroom; children naturally sing with all their little mights, and there are teachers and Sunday school superintendents who are continually striving after boisterous singing. If they could only learn that an ounce of sweetness is worth many pounds of noise, many a child's voice would be saved.

With children, also, it is important to keep well within the range of their voices. It differs, of course, in individuals, and unfortunately we have few scientific studies of large groups of children. By far the best, both as to method and number of subjects, is that of Paulsen. He, with the aid of a singing master, tested 250 individuals in each school class in Kiel; a total of 2,685 boys, between six and fifteen years, and 2,259 girls from six to fourteen; in all 4,944. He used only children of normal health and recorded only the low and high notes which could be produced with ease. Gutzmann, with the aid of Flatau, examined 575 children; and in 166 cases they used the laryngoscope also. They found their conclusions in agreement with Paulsen (8, p. 52). They also studied the range of the child's voice from birth to the sixth year. Here their work practically agrees with Garbini. Gutzmann prepared the following diagram, using his own results up to the sixth year, and Paulsen's from that year on. It shows the pitch of the child's voice in 75 per cent. of cases. The half notes represent the range of the boys' and the quarter notes, that of the girls' voices.



The range of the child's voice (after Gutzmann).

If these results are true for American children, the music offered them in the first four grades is certainly too high in pitch. It is quite true that 25 per cent. of the children have a greater range; but great harm may accrue to the majority, by forcing them to sing notes, easily possible, only to a few.

Before leaving the subject of the hygiene of the larynx, it may be well to add that speakers usually use only the middle register, and very few notes, so there is no danger of register forcing. Occasionally we hear a man growling in what the Germans call the *Strohbassregister*—really, the low notes of the chest register. It is bad, of course, both for speaker and listener; for the speaker, because the vocal cords are not tense enough and the glottis is so open that the tones must be more or less breathy; for the listener, because the low notes do not carry so well. It is never necessary for a speaker, no matter how large the hall, to shout or to force; raising the pitch a tone and adding nasal resonance will fill the largest audience room.

We come last of all, to the hygiene of the resonance cavities, and here the subject cannot be treated adequately, because it is too extensive for this study. It includes the hygiene of the pharynx or the back part of the throat, and of the nasal cavities. The teeth, especially the incisors, are important; for the best tone they should be even, and there should be no vacancies.

In the throat, the uvula should not be too long; if, in its natural position, it irritates the anterior surface of the tongue, a physician—a specialist if possible—should be consulted; it is a very simple operation to shorten it.

The tonsils often give trouble; if they are easily infected, and frequent attacks of quinsy and tonsilitis result, a physician should again be consulted as to their removal. Enlarged tonsils often interfere with the proper use of the voice; oftentimes the voice is improved by their removal because the cavity is enlarged, resulting in a rounder, fuller tone. The operation, again, is a simple one. Behnke says, "It is not so much the size of the tonsil that is the cause of local defect, as extension of its inflammation to neighboring tissues, which causes faults in the muscular action of the pharynx. The voice becomes more or less husky, toneless and easily fatigued. Articulation is always impaired, the sufferer speaking as if with a full mouth. This condition alone, may account for stuttering or other special defect in some cases" (3, p. 280).

Pharyngitis—inflammation of the pharynx—better known, perhaps, as common sore throat, is indeed more common and less serious; but "It may assume a graver type, and all the characteristics of an inflammation, acute or chronic." It is not always confined to the pharynx but may spread to the naso-pharynx, and to the soft palate. It is doubtless an infection, which means that a frequent cleansing with an antiseptic solution would prevent many a sore throat. Perhaps the most common disorder of voice users is the chronic granular pharyngitis or "Clergyman's Sore Throat." This is again probably an infection which is made easy and aggravated by constant forcing, straining and congestion of the muscles and of the membranes. The symptoms of sensation are a feeling of pricking, heat, and a slight soreness in the throat. A short cough is also sometimes present. The voice is, usually, more or less hoarse, and singers complain of a loss of their high notes; later there arrives a period of complete suppression, at first of the singing and then even of the speaking voice. This is due, say Brown and Behnke, "Either to want of control over the voluntary muscles of articulation, or to loss of power in the automatic laryngeal muscles; sometimes to both combined."

The hygiene of the nose is a subject in itself, but extremely important for the voice user. In addition to its office of warming, moistening and purifying the air we breathe, an important function in itself, it aids in both speaking and hearing.

First of all, the passages should be entirely open. They become closed, or partly closed, in several ways; (1) by deflection of the septum, (2) by enlargement of the turbinated bones, (3) by swelling of the mucous membrane, (4) through catarrhal troubles, (5) through abnormal growths such as polypi, adenoids, etc. In any difficulty of breathing a physician should be consulted. The septum may be displaced through accident, or through the waywardness of children in forcing small objects into the nose; the defect is easily remedied. The surgeon can also easily saw out portions of enlarged bone, or reduce enlarged tissue. It is impossible, here, to treat adequately the subject of catarrh. Neumayer says dust is the great source of such infection; some specialists say that if there is a proper opening through the nose, catarrh will disappear. In other words, it is in the final analysis a matter of inefficient drainage. If this be true, such minor operations as have been mentioned, will greatly assist in remedying catarrhal difficulties. In addition to partly closing the resonating space, catarrh works a serious injury to the quality of the membranous lining, which, as we have seen, is another matter of importance.

Of the abnormal growths, polypi are small, soft structures, which grow like parasites on the membrane, especially, in the upper part of the naso-pharynx, and in the nasal passages. So far as we can learn, their greatest evil consists in occupying space which is needed; they are easily removed. Adenoids are much more harmful, and prey especially on children. Dr. Burnham has shown that they may not only be the cause of deafness, interfering with both the mental and physical life of children, but they may be responsible for many defects in articulation. Quoting from Dr. Hagelin, he says, some children, having adenoids, "have difficulty in learning tolerably correct articulations, and of keeping them in memory, if once acquired; . . . . they substitute back vowels for front, and there is a general lack of innervation in all their attempts to speak" (4, p. 165). Parents and teachers should acquaint themselves with the symptoms of these vicious growths; the operation is not difficult and usually successful.

Perhaps enough has been said to show that the true hygiene of the voice is that of the lungs, the larynx, the throat, mouth, and nose. The ear might well be added, and it would be easy to show effects on the voice of poor digestion and of fatigue in general. Thus, it will be seen that our good friend, Dr. Hippocrates, with whom we began, was not far wrong when he judged a patient's condition by the sound of his voice.

SUMMARY.

From early times, the sound qualities of the voice have been regarded as an index of general physical and nervous conditions.

The mechanism of the voice includes three factors, corresponding to necessary parts of a musical instrument: (1) the organs of respiration—the bellows of the instrument; (2) the vocal cords—the vibrating reeds; (3) the chest, mouth and nasal cavities—the resonance chambers.

The problem of the organs of respiration is one of control, involving the use of all the air space in the lungs and the economic expenditure of breath. Hygiene here involves attention to the general physical condition, that over fatigue may be avoided. The air should be of proper temperature and sufficiently moist. Tight bands about the waist and neck should be avoided.

The correct use of the vocal cords is conditioned by the avoidance of strain or effort, to allow the normal adjustment of the different registers. Easy singing or speaking should be the rule. It should be remembered that the danger in forcing is in going up the scale, never in coming down.

Most observers agree that the voice should not be used in singing during the period of change, especially if there be a break in the voice. They also agree that, as a rule, vocal study in either sex, should not be begun until after puberty.

Careful studies in Germany indicate, that in 75 per cent. of cases, the child six years of age has a range of only five tones, and that the maximum range of the child is not reached until the twelfth year.

It is of the utmost importance to make every possible use of the mouth and nasal cavities for resonance; to this end the nasal passages should be clear of any obstruction, and such foreign growths as polypi and adenoids should receive medical attention.

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GENERAL OUTLINE OF THE NEW CHILD STUDY WORK AT CLARK UNIVERSITY

By G. Stanley Hall

A. CHILDREN'S INSTITUTE

Until the organization of this Institute by the Trustees of Clark University in 1909, there was nowhere in the world an institution devoted to the collection, diffusion and increase of the scientific knowledge of childhood, which during the last quarter of a century has been so actively and fruitfully studied. As this work especially began in the United States, although it is now cultivated in every land, and as during the last twenty years between two and three hundred investigations represented by as many books and published memoirs have emanated from Clark University, it seems fitting that the first installation of it, which had been under consideration for years, should here have its local habitation and its name. Other names have been suggested, such as the Paidological Bureau, The Institute for Scientific Study of Childhood, Institution for Applied Experimental and Genetic Psychology, etc.

I. The first task is the *collection of literature* upon the subject. To this our library has for years given much attention and has printed a copious bibliography upon the subject with many hundred titles each year since 1895. While not exhaustive, it is believed that our collections here are more comprehensive than anywhere else. They include journals exclusively or mainly devoted to different aspects of this subject. It was necessary, however, to do more. Accordingly an expert, Dr. Smith, was appointed in the spring of 1909 to collect by correspondence leaflets, constitutions, and reports from the several score types of child welfare institutions, to classify and make this literature generally accessible. The use that has been made of it both by personal visitation and the taking out of material and the very extensive correspondence involved is set forth in Dr. Smith's report below. Again, in the two years ending 1905, no less than seven hundred and fifty-three school bills were passed by the different state legislatures, to say nothing of those pertaining to orphans, delinquents, waifs, etc. All this legislation should be gathered and made available. Here too might begin correlation looking toward a general organization of organizations. Correspondence, which is now rather voluminous concerning children, belongs here, and perhaps even a library of standard reading for children; there might at any rate be a standard collection of books concerning children, with descriptive catalogue. Ideally, all this material should be loanable even at a distance. See the report of the Librarian, *Dr. L. N. Wilson*, also the following report of his assistant Dr. T. L. Smith.

II. NATALITY. The genetic and the logical first condition is to have children born, and well born. The declining birth-rate in nearly every civilized country, and especially in parts of our own, race suicide, late marriages, the decline of nursing children and the enormous mortality directly due thereto, sexual hygiene, the general principles of heredity and the scientific aspects of stirpiculture, are now accessible in various eugenic movements, societies, publications and journals in various lands. This fundamental view-point touches the very deepest interests of mankind and the basal conditions of society. The world has recently awakened to this subject as never before and it is obvious that this field should be cultivated as a special department in an institution devoted to childhood. *Mr. De Busk* will represent this topic here next year.

III. HEALTH AND DISEASE. Here belongs the hygiene of the nursery and the home, of the school of all grades from the kindergarten up, studies of the age of greatest liability and most contagion for all the epidemic diseases of childhood, the medical aspects of gynecology and pediatrics, the latter of which is now having a rapid and needed development in medical education; the alarming mortality of children under one year of age and the unwholsome condition of city life, the problems of hygienic and economic study of lighting, heating, ventilation, especially of schools, the recent special attention given to tuberculous children, sexual infections of childhood and youth; the medical inspection of schools, the collection of hygienic apparatus in a museum for use and demonstration, the gathering of the manifold statistics in this field,—these will show its dimensions and importance. Here belong, too, the qualifications of nurses, midwives, and the whole milk question, so far as relates to the child. These latter questions have each been the theme of careful, local, social surveys here during the past year. See here the report of *Professor W. H. Burnham*.

IV. SUBNORMAL CHILDREN. At least one per cent. of all the children in our schools are distinctly subnormal. The causes of their condition as, *e. g.*, in the well-known cases of adenoids and sometimes of the care of teeth, eyes and ears, are sometimes removable. The schools for imbeciles, especially for those of higher grade; the training of the blind and the deaf, to the latter of which the new Volta Bureau is devoted; the very wholesome pioneer work already established in half a dozen centres in this country,—constitute one of the most interesting sections of paidology. See *Mr. Chase's* report below.

V. CRIME. Recent statistics of early delinquency, the juvenile court, the problems of detention, probation, institutions and their organization, and the regimen and education given in them, is another department which has its own literature, which makes it a department of applied ethics, of practical morality, a study of which is not only of high scientific, but of the greatest social and moral advantage. Several special local studies have been made in this field, and a special appointee here, who could give all his time to the study of causal and preventive agencies here, *is desired.*

VI. VICE. Here again we have sad and almost appalling statistics concerning the sexual errors and even aberrations of childhood and youth. The world has awakened to-day as never before upon this subject, and the field here is of the very richest and most absorbing psychological interest and is vital to racial perpetuity. It is of course closely connected with department II above. Here several interesting studies have been made.

VII. CHILD LINGUISTICS. For many years there have been very careful observations and records of the growth of language in the child, who appears to start to evolve a language of its own and is early caught up in the speech of the environment. The increase of vocabulary, the evolution of each of the parts of speech, the development of the powers of pronouncing the various sounds and words of our language, the later prevalence of slang, the practical psychology of learning modern languages whether ancient or modern,—these are topics which not only shed scientific light upon phonic and philological laws and upon the origin of speech in the race, but furnish the basis for a more exact application of this knowledge in the field of pedagogy, where it is now greatly needed. See *Dr. Magni's* report below.

VIII. ANTHROPOLOGICAL AND SOCIOLOGICAL. Careful studies of growth in height, weight and other dimensions of limbs, brain, muscle, dexterity, influence of climate, season, country and city upon health and school work, child insurance, their capacity as witnesses, the age of majority and the period before birth when the law regards the child as "quick," the normal age for being weaned, teething, taking up each study by the right method, the upper limit of the age of attendance, the age of consent, the history of the way children have been treated in the past and are regarded now in families of different nationalities,—all these make up a department not yet represented here.

IX. EXPERIMENTAL DIDACTICS. Many special investigations have been made to discriminate between the greater or less efficiency of different methods in teaching children to read, and some definite results have been reached. Many investigations under exact conditions have shed much light upon the psycho-physiology of writing, also of elementary number and arithmetic, to say nothing of geography and other subjects, which can be made objects of research under controlled conditions. Moreover, the modes of treating questionnaire and other statistical material derived from the study of large numbers has a logic all its own. This work is designed to give education a more scientific as well as a more professional character. For what is doing here, see the report of *Dr. A. E. Tanner* below.

X. CHILD LABOR AND INDUSTRIAL EDUCATION. The country is passing through an important era in its educational history in this respect. The vast majority of children leave school at or before the close of the sixth or seventh grade and before their services are of much value in the trades. In some places they still work in tender years and under very unhygienic conditions. Many children fall a prey to all the dangers of idleness. Others waste the most plastic years of life in drifting from job to job when they might, if proper continuation schools were accessible, be fitted for life. The needs of the masses of girls and especially of boys, which are not provided for by Sloyd, by so-called manual training, or by technical schools, constitute one of the gravest problems of present day education, a problem connected with the playground and many other movements. This department is *not yet organized*.

XI. MORAL AND RELIGIOUS EDUCATION. There are so many and diverse new departures in this field that a clearing house function where the various movements are brought together and compared seems necessary. We are rapidly gaining in our understanding of the moral nature of childhood in its various stages and also how the child reacts to religious influences. Here, too, belong among other needs the practical aspects of the new sex education that, since the Mannheim Conference in 1907, is being introduced in so many cities and even churches and elsewhere. Its work connects closely, of course, with departments V and VI above, and has its own unique possibilities. Here belongs the study and the question of how far, if at all, religion is necessary or can be dispensed with in moral training, how both may be taught in school, Sunday School problems, the pedagogy of the Bible, and the very interesting theme of mission pedagogy, which is now looming up in various forms and aspects.

XII. PEDAGOGICAL MUSEUM. Dr. Andrews has shown what pedagogical museums in Europe are and can do and we are beginning to understand them here. Illustrative apparatus in the way of charts, games, reading and reckoning devices, geographical and historical appliances, educational toys, and illustrative apparatus generally in the sciences and in other departments, without which a laboratory or even a school building is a corpse without a soul,—these things are being collected and will have next year a large room of their own in which Saturday lectures to teachers with demonstrations can be given.

Of the above departments, six are now in operation; and it is hoped the others will be established during the next academic year.

The purpose of this work is as follows:

A. To *offer courses of conferences* or lectures in each of the above fields. These are given this spring in the departments organized and will be more extended later. They constitute a unique educational group in which scientific child study and the practical movements of child welfare will be brought together. The conferences will be open to special students and will make copious use of such illustrative material as is at hand and of the literature provided.

B. The internal problem here faced is one of *co-ordinating the scientific work of experimental and genetic psychology with the sources of child welfare agencies now at work.* This is perhaps the most difficult of the tasks before the Institute; but it is the most important and its solution should be in the highest degree beneficent. On the one hand paidology cannot fail to be greatly enriched by gathering the accumulated but as yet entirely unco-ordinated results of the knowledge which practical workers in the field have acquired of children, their ways and needs. There are problems that arise out of their work that demand special research on the part of experts. It is hoped that these various organizations will either purposely formulate and pass in questions they desire investigated or, where this is not the case, that their problems may be found, defined and formulated by specialists here, who will study modes in which they can be guided to furnish help to make ways of service more effective.

C. Our most serious endeavor at present is to compile or *outline the history of each class of society or institution* and to find in the voluminous results of child study data already established which can be proposed to workers to aid them each in their several fields. If this reciprocity or mutual help can be established and child philanthropy given a more professional, scientific character with the already accumulated resources, the time will come we believe when one of the chief ends of the institute will be accomplished. The sad fact is that hitherto the field workers and scientific investigators have had but few points of contact and known very little and indeed have sometimes lacked due appreciation of each other. It is hoped that something may here be done to ameliorate this condition and to this end we invite co-operation in every field.

Our workers would all be in the heartiest sympathy with the establishment of *a Children's Bureau in Washington as a national institution, provided only that scientific paidology be adequately represented in it.* Such an institution chiefly in the interests of child labor, playgrounds or any or all other philanthropic efforts for the betterment of child life, divorced from science, would be unfair to workers in the field whose efficiency and whose professional status would suffer without, and be distinctly augmented by, such affiliation as is above described. The most intelligent friends of the Indian deplore the almost water-tight compartment which now exists between American anthropologists who have studied and known the Indian language, industries, organization and ethnology generally, and the Indian Bureau which only looks after his practical needs. It is unfortunate even for the latter that these two departments are lacking not only in co-operation but even in sympathy and respect for each other's work. Similar segregation between paidology and child welfare service would also be a great misfortune for the child.

The following reports set forth the history, work up to date, plans and facilities open to students and workers, also a further description of courses.

REPORTS AND STATEMENTS OF DEPARTMENTS

I. LIBRARY FACILITIES FOR THE WORK OF THE CHILDREN'S INSTITUTE AND THE NEW BUILDING FOR THIS WORK.

By LOUIS N. WILSON, Litt. D., Librarian

In view of the fact that the child study movement had its inception at Clark University and that more work has been done here in this field than perhaps anywhere in this country or in Europe, the Library has for many years specialized on the literature of this and related subjects. As early as 1897 the librarian commenced the compilation of all the more important books and articles in the field, and it was published in the *Pedagogical Seminary* for April, 1898. This first installment was brought down to the end of 1897 and in each subsequent year the literature of the previous year has appeared in that periodical.

The bibliographies for the years 1908 and 1909 have not yet been published, but it is hoped they will be printed before the end of the academic year. The total number of titles thus listed in the thirteen years is 5,427.

The Bibliography is indexed by subjects each year and has proved a valuable aid to workers in this field. It is now issued as a publication of the Library.

It has long been our ambition to enlist the co-operation of students in education, psychology, psychiatry, neurology, religion, etc., in the University departments, with a view to a careful listing of all magazine articles in these fields from month to month. Under this plan, which we hope to put into operation next year, the cards would be made available at once and lists posted for the benefit of those interested. We are also anxious to increase the annotated titles. A mere title is often of little value, but one or two sentences touching upon the heart of book or article adds greatly to the value of such a list and it is from the students of the University that these notes should come. The student himself who spent an hour or two a week in merely glancing over the periodical literature and indicating such articles as are worth listing would be amply re-paid in the larger outlook he would have and in acquiring the habit of keeping in touch with the printed matter just from the press, representing, as it does, the very latest contributions of the ablest minds in science.

Mr. Harry W. Chase is at present engaged in the preparation of an annotated bibliography of the Freud School, which the Library will later issue in printed form.

The Library has also for many years past, preserved lists of bibliographies on all subjects which have been studied here and, in addition, keeps a list of all printed bibliographies, however small, that are to be found on its shelves. These bibliographies range from a dozen titles on a subject to many hundred, the total number of titles rising over 10,000.

The following list will give some idea of the variety of subjects covered by the unpublished bibliographies:

Special Bibliographies

Advertising
Agricultural education
Ambidexterity
Arithmetic
Aussage
Auto-intoxication
Blind
Character
The Child (general)
Child labor
Child linguistics
Child thought. (Thinking and reasoning)
Child's speech
Children's lies
Children's literature
Children's vocabularies
Coeducation
College administrative problems
College athletics
College Life
Collections
Corporal punishment
Dancing
Deaf blind
Dementia præcox
Dreams
Dreams of the insane
Education of girls
Education of primitive races
Education, Psychology of
Educational values
Election of senators
Electromagnetic mass
Emotions
Emulation
English, Psychology of
English education
English universities
Ether
Eugenics
Experimental pedagogy
Fetichism
Foods and diet
Forestry
Formal training
Fraternities
Freud School
Hand
Health inspection
Heredity
High school
High school science
Hygiene of foods
Imagination
Imitation
Industrial education
Instinct
Institutional church
Katatonia
Keller, Helen
Kindergarten
Left-handedness
Magic
Mediæval universities, Rise of
Medical inspection
Memory
Memory, Biological
Memory training
Mental deficiency
Mental imagery
Miracles of healing

Moral and religious training
Municipal government by commission
Municipal ownership
Negro
Number forms
" teaching
Nutrition and thought
Origin of life
Parrots
Play
Playgrounds
Poetry of architecture
Pragmatism
" Criticism
Prenatal conditions
Psychoanalytic method
Punishment
Questionnaire method
Radiation
Reading
Relativity
School and home
School gardens
School sessions
Sensations
Sex
Speech
Story-telling
Sucking
Suicide
Teachers' salaries
Temperament
Twins
Vocabularies
Voice
Woman suffrage
Writing

In connection with his weekly Seminary, Dr. Burnham has insisted that each student in presenting a subject for discussion shall prepare a bibliography at the library. Copies of these are distributed to the class and a set bound up for library reference. A list of the subjects thus treated since 1902 may not be out of place here.

Bibliographies on Educational Subjects presented at Dr. Burnham's Seminary, 1902-03

Animal pedagogy
" psychology
Arithmetic, Teaching of elementary
Geography
Germany, Secondary schools of
Heredity
Interest and education
Kindergarten
Language, Early training
Languages, Methods of teaching modern
Myth in school instruction
Nature study
Priest and teacher
School discipline, or The training of character
Secondary schools (U. S.), The mother tongue in
Vittorino da Feltre and other humanist educators of the first humanist period

1903-04

American colleges, universities and professional schools
England, Elementary schools of
" Secondary schools of
" Training of teachers in
English universities
France, Secondary schools of
French elementary schools
" universities
German secondary schools
German universities
Germany, Training of elementary teachers in
Germany, Training of secondary teachers in
Greece, Education in ancient
Japan, System and present status of education in
Die Volkschule

1904-05

Academies and learned societies
Black Death, Effect on education
Comenius
Dewey, John
Educational progress in England during the Renaissance
English reformation
English universities

Froebel
Hegel, Pedagogy of
Influence of the great geographical discoveries
Jansenists and Port Royal
Jesuits
Locke, John
Montaigne, Michel Eyquem de
Neo-Humanism
Pestalozzi as a social reformer.
Rabelais, François
Reformation in Germany
Renaissance in France
" in Germany
" in Italy
" in the Netherlands
" in Spain
Women of the Renaissance

1905-06

Acquisition of technical skill
Animals, Learning process in
Children and adults, Differences between
Experimental pedagogy
Experimental studies in arithmetic
Experimental studies in kindergarten occupation
Experimental studies in reading
" " in singing
" " in writing
" " of imagination
Experimental studies of memory and habit
Experimental studies of suggestion
Feeble-minded, Learning process in
Hypnotism
Intelligence, Tests of
Lay's experimental studies
Motor training
Questioning, Psychology of
Sex-differences
Spelling
Subconscious, Psychology of the

1906-07

Board schools
Cambridge
Education, Arnold's Influence on.
England, Great public schools of
English education, general books of reference prepared by the Director of Special inquiries and reports. Bd. of education library. Whitehall, London
English education, English home as a factor in
English education, General works of reference on
English schools, Early
Hegel and Harris
Huxley, Thomas Henry
Oxford
Plays and physical education
Renaissance, Women of the
Revival of learning in England
Ruskin, John
Schools, Codes of regulations for elementary
Sozial-Pädagogik
Spencer
Voluntary schools

1907-08

Campanella
Comenius
Education, General history of
Education, History of
English education in the later Middle Ages
French academies
Goethe
Guilds of the Middle Ages
Industrial awakening in Italy
Italian Renaissance
John Locke
Loyola, and the Jesuits
Periodical references
Realism, Beginnings of
Reformation in Germany
Renaissance in France
Renaissance, Private tutor at the
Reformation in Scotland
Scotland, Education in the 15th, 16th, and 17th centuries
Wandering scholars

1908-09

Administration, Experiments in city school
Animals, Learning process in
Arithmetic, Primary
Association experiments
Attention

Attention. (Supplementary bibliography)
Dewey laboratory school
Drawing, Experimental studies of
Formal training
Habit
Home conditions, Investigations of
Imagination, Experimental studies in
Imitation
Memory training and economical methods of learning
Open-air schools
Pedagogy, Experimental
Physical training
Pupil self-government
Singing, rhythm, tone and imitation
Spelling
Suggestion
Suggestion, Experimental studies in
Technical skill, Acquisition of
Testimony, Experimental studies in
Testimony, Experiments on children's

The Library also possesses the following Master's Theses in unpublished form:

Arnos, E. M. Should inequalities of wealth be regulated by a progressive income tax? 1908. 40 p.
Bacon, C. W. A study of the determination of carbon by combustion. 1907. 27 p.
Baldwin, F. M. Daily life of the earthworm. 1907. 19 p.
Baron, A. H. N. Juvenile delinquency in Worcester, Mass. 1906. 33 p.
Beeson, W. J. The child and his religious development. 1908. 21 p.
Bramhall, R. I. The Congo in American diplomacy. 1906. 62 p.
Bramhall, R. I. Origin and growth of the manor. 1906. 51 p.
Broene, Johannes. Early philosophy of Friedrich Nietzsche. 1907. 56 p.
Bruner, Jesse. Constitutional vitality and vigor of offspring and the physiological conditions which influence it. 1907. 9 p.
Butman, C. A. Zeeman effect treated historically and experimentally. 1909. v p.
Carroll, C. S. Catholic confessional. 1909. 158 p.
Chidester, F. E. Biology of the crawfish. 1908. 29 p.
Conklin, E. S. Collegiate religious education. 1909. 109 p.
Cooke, F. N., Jr. Study of the causes of poverty in Worcester, Mass. 1906. 24 p.
Crum, Lucetta. Story-telling. 1909. 100 p.
Curtis, E. W. Dramatic instinct in education. 1908. 47 p.
Disney, C. E. Histology of certain insect galls of the oak. 1907. 20 p.
Dixon, E. M. Problem of the cat in relation to bird life. 1907. 28 p.
Dowd, J. E. Sacrifice of the mass in the Catholic church. 1909. 81 p.
Downey, H. M. Ambition. 1909. 84 p.
Drowne, G. L. Essential elements of poetry. 1906. 96 p.
Ellison, Louise. Psychology of definition. 1907. 35 p.
Estabrook, A. H. Present status of the English sparrow problem in America. 1906. 37 p.
Gates, B. N. Cellular structure of the peach. 1906. 6 p.
Greenwood, R. R. Ibsen; the man and his work. 1908. 133 p.
Harrington, E. A. Quantitative observations on the vibrations of a tuning-fork. 1906. 26 p.
Hélie, Euclid.
Kanda, Sakyo. Examination of Buddha's atheism and non-âtmanism. 1909. 57 p.
Kaylor, M. A. Feelings, thought and conduct of children toward animal pets. 1909. *Ped. Sem.*, 1909, v. 16, p. 205-239.

KEITH, W. H. Russia's expansion and development in Asia. 1906. 35 p.
KRANZ, A. L. Studies in the development of student honor and self-government. 1909. 80 p.
LIE, O. K. On the reduction to the canonical forms of the equations of transformation groups with continuous parameters. 1908. 56 p.
LYFORD, C. A. Study of the dissociation products of bovine hæmoglobin. 1906. 21 p.
MCCURDY, J. H. Adolescent changes in heart-rate blood-pressure. 1909. 19 p.
MCNAMARA, F. P. Marriage and divorce. 1908. 112 p.
MATHENY, W. A. Effects of alcohol on the life cycle of paramecia. 1909. 14 p.
MILLS, O. W. Biology of Pellia epiplylla. 1908. 28 p.
MONTGOMERY, W. J. On the smallest number of inflexions on a non-singular odd branch of an algebraic plane curve, etc. 1908. 25 p.
NAKAMURA, YASUMA. Formation and genesis of suicidal impulse. 1909.
NICKERSON, C. B. Study of the solubility and reduction products of potassium chlorplatinate. 1907. 16 p.
OSBORNE, C. A. The cat, a neglected factor in sanitary science. 1907. 43 p.
PORTER, T. L. A study of the forced vibrations of a soap-film membrane. 1908. 39 p.
POWER, T. P. A precise qualitative study of the phenomena of direct esterification.
RICHARDSON, C. E. Unrest in India; its causes. 1909. 84 p.
RUSSELL, J. A. Religious crisis in France; its history, causes and results. 1908. 126 p.
ST. JOHN, E. P. A genetic study of veracity. 1908. 25 p.
SALMON, J. J. Saint invocations and religious memorials in the Catholic church. 1909. 91 p.
SCHÜRMANN, H. H. Dramatic characteristics of Richard Wagner's tetralogy Der Ring des Nibelungen. 1909. 29 p.
SIDDELL, W. G. The juvenile court; its work, development and possibilities. 1908. 144 p.
STEVENSON, T. J. Instrument for the study of the time relations of binocular vision. 1907. 11 p.
STEVES, G. H. Child labor. 1908. 144 p.
WALLACE, E. M. Comparative study of motor nerves and nerve-endings by the Sihler method. 1908. 10 p.
WATANABE, JUN. Relation of trusts to labor unions. 1907. 31 p.
WEBB, R. L. Psychological novel. 1906. 19 p.
WIGGAM, AUGUSTA. Contribution to the data of dream psychology. (Repr. fr. *Ped Sem.*, June, 1909, v. 16, p. 240.51.)
WRIGHT, C. D. A quantitative experimental investigation of the steric hindrance hypothesis.

Among its 500 or more periodicals the Library contains all those dealing with child study in any scientific way. The best periodicals devoted solely or largely to this subject are:

Child Study Periodicals

BULLETIN DE LA SOCIÉTÉ LIBRE pour l'étude psychologique de l'enfant. Félix Alcan, 108 Boulevard St.-Germain, Paris. 10 Nos. yearly. Annual subscription, 3 francs. Founded 1900.
CHILD LIFE. Pub. by Froebel Society of Great Britain and Ireland. George Philip & Son, 32 Fleet St., London, E. C. Annual subscription, 4 s. Founded 1899 n. s.

Children's Charities. (Has Health Department.) 79 Dearborn St., Chicago. Monthly. Annual subscription, $1.00. Founded 1893.

Child Study. (Jour. of British Ch. Study Ass.) Pub. by Edward Arnold, 41 and 43 Maddox St., Bond St., London. Quarterly. Vols. 1-9 (1899-1907), under title The Paidologist. Founded 1899.

L'Education familiale. 44 Rue Rubens, Bruxelles, Belgium. 10 Nos. yearly. Annual subscription, 6 francs. Founded 1899.

L'Enfance anormale. Bulletin trimestriel de la Société protectrice de l'Enfance Anormale. Amand Jonckheere, 115 Rue Marie Christine, Laeken, Bruxelles. Quarterly. Founded 1907.

L'Enfant. Revue Mensuelle illustrée, consacrée à la Protection de l'enfance. 13 Rue de l'Ancienne-Comédie, Paris. Annual subscription, 7 francs. Founded

Eos. Vierteljahrsschrift für die Erkenntnis und Behandlung jugendlicher Abnormer. A. Pichlers Witwe & Sohn, Wein. Annual subscription, 10 Mk. Founded 1905.

Gesunde Jugend. Zeitschrift für Gesundheitspflege in Schule und Haus. B. G. Teubner, Poststrasse 3, Leipzig. Monthly. Annual subscription, 5 Mk. Founded 1901.

Jahrbuch für Kinderheilkunde und physische Erziehung. S. Karger, Karlstrasse 15, Berlin. Monthly. Annual subscription, 36 Mk. Founded 1858.

Jugendschriften-Warte. Organ der vereinigten deutschen Prüfungsausschüss für Jugendschriften. Ed. Heinrich Wolgart. Hamburg-Fuhlsbüttel, Brombeerweg 41. Monthly. Annual subscription 1.20 Mk. Founded, 1893.

Kind und Kunst. Illustrierte Monatshefte. Brandus 'sche Verlagsbuchhandlung, Berlin. Founded 1904, but suspended during 1907. Annual subscription, 6 Mk., with supplement, "Frohe Jugend" 8 Mk.

Pedagogical Seminary. Ed. G. Stanley Hall, Clark University. Worcester, Mass. Quarterly. (Clark University organ for Child Study.) Annual subscription, $5.00. Founded 1891.

The Playground. 1 Madison Ave., New York City. Monthly. Organ of the Playground Ass'n of America. Annual subscription, $1.00. Founded 1907.

Sammlung von Abhandlungen aus dem Gebiete der Pädagogischen Psychologie und Physiologie. Editors, Th. Zeigler & Th. Ziehen. Verlag von Reuther & Reichard, Berlin. Annual subscription, 7.50 Mk. Founded 1897.

Sammlung von Abhandlungen zur psychologischen Pädagogik. E. Meumann, Editor. Verlag von Wilhelm Engelmann, Leipzig. Appears irregularly and price varies. 2 vols. in print. These are child studies collected from the Archiv für die gesamte Psychologie. Founded 1904.

Zeitschrift für angewandte Psychologie und psychologische Sammelforschung. Ed. by William Stern & Otto Lipmann. J. A. Barth, Dörrienstrasse, Liepzig. 6 nos. yearly. Earlier vols. under title Beiträge zur Psychologie der Aussage. Annual subscription, 2.20 Mk. Founded 1903.

Zeitschrift für die erforschung und Behandlung der jugendlichen Schwachsinns. Verlag von Gustav Fischer, Jena. 6 nos. yearly. Annual subscription, 15 Mk. Founded 1906.

Zeitschrift für Jugendwohlfahrt im Auftrage der Deutschen Zentrale für Jugendfürsorge. Ed. Dr. Lindenau. B. G. Teubner. Monthly. Annnal subscription, 12 Mk. Founded 1909.

ZEITSCHRIFT FUR KINDERFORSCHUNG MIT BESONDERER BERÜCKSICHTIGUNG DER PÄDAGOGISCHEN PATHOLOGIE. Hermann Beyer and Söhne, Langensalza. Monthly. Vols. 1-11 (1896-1906) under the title Die Kinderfehler. Annual subscription, 4 Mk. Founded 1896.

ZEITSCHRIFT FUR PÄDAGOGISCHE PSYCHOLOGIE, PATHOLOGIE UND HYGIENE. Editors, Ferdinand Kemsies and Leo Hirschaft. Hermann Walther, Nollendorf Platz 7, Berlin W. 6 nos. yearly. Annual subscription, 10 Mk. Founded 1899.

AGYERMEK (Das Kind). The child study organ of the Hungarian Society for Child Research. Redaktion Budapest. Contains summaries in French and German. Founded 1906.

Dr. Theodate L. Smith, who has been in charge of the special collection relating to Child Welfare during the year, has made a report of that department which appears elsewhere, but the short list of books given below may prove of service to those desiring guidance in welfare work.

Books and Articles on Child Welfare

ADAMS, M. E. Children in American street trades. (In Annals of the American Academy, May, 1905.) v. 25, p. 437-58.

ADDAMS, JANE. Spirit of youth and the city streets. N. Y., Macmillan, 1909. 162 p.

ADLER, FELIX. Moral instruction of children. N. Y., Appleton, 1892. 270 p.

American association of medical milk commissioners. Proceedings of conferences. 1907-09. 1st-3d. Cincinnati, 1908-09.

BUNTING, E. M. School for mothers. 1907. 86 p.

Charities register and digest; Classified register of charities in or available for the metropolis (London). Lond., Longmans, 1909. 670 p.

CURTIS, E. W. Outdoor schools. (American City, Nov., 1909, and Jan., 1910, v. 1, p. 115-118. v. 2, p. 33-37.)

DAWSON, G. E. Study of youthful degeneracy. (*Ped. Sem.*, Dec., 1896, v. 4, p. 221-58.)

GEORGE, WILLIAM REUBEN. The Junior republic, its history and ideals. N. Y., Appleton, 1910. 325 p.

George Junior Republic. Freeville, N. Y. Annual reports.

GORST, J. E. The children of the nation—how their health and vigor should be promoted by the state. Lond., Methuen (1906). 297 p.

Great Britain. *Parliament.* Children Act. 1908.

GUNCKEL, J. E. Boyville, a history of fifteen years' work among newsboys. Toledo Newsboys' Association. 1905.

HENDERSON, C. R. Care of dependent children. (*In his* Introduction to the study of the dependent, defective and delinquent classes. 1893.) p. 69-77.

HILL, F. D. Children of the state. Lond., Macmillan, 1889. 370 p.

International Congress for the welfare and protection of children. Reports of proceedings. Pub. triennially.

International Congress of Charities, Correction and Philanthropy. Care of dependent, neglected and wayward children. 1894.

International Congress on school hygiene. Transactions.

JOHNSON, G. E. Education by plays and games. Bost., Ginn (1907). 234 p.

KELLY, FLORENCE. Some ethical gains through legislation. 1905.

KELYNACK, T. N. (Ed.) Infancy (National Health Manuals). London, R. Culley, 1910. 186 p. A valuable shilling book containing 12 chapters by different medical men.

Kongress der Deutschen Gesellschaft zur Bekämpfung der Geschlechtskrankheiten. Sexual pädagogik; Verhandlungen. 1907. 3rd. Lpz., Barth. 1907. 1 v.

Kongress für Kinderforschung und Jugendfürsorge. Bericht. 1906.

LEE, JOSEPH. Constructive and preventive philanthropy. 1902.

MORRISON, W. D. Juvenile offenders. N. Y., Appleton, 1897. p. 1-178.

MYA, GUISEPPE. Cause e rimedii dell' alta mortalità infantile. 1905. 35 p.

National child labor comm. Proceedings of annual conferences.

National Conference of Charities and Corrections. Proceedings. 1875-1909. 36 v.

National society for promotion of industrial education. Bulletins. 1907-1909. Nos. 1-9.

N. Y. Society for the prevention of cruelty to children. Laws of the State of New York and of the United States relating to children, with notes and references. 1876.

PARSONS, BELLE R. Plays and games for indoors and out. N. Y., Barnes, 1909. 215 p.

PARSONS, FRANK. Choosing a vocation. N. Y., Houghton, 1909. 165 p.

Playground association of America. Proceedings of annual congresses. 1907-1909.

REEDER, R. R. How 200 children live and learn. N. Y., Charities Pub. Com. 1910. 247 p.

SPARGO, JOHN. Bitter cry of the children. N. Y., Macmillan, 1906. 337 p.

VANDEWALKER, N. C. The kindergarten in American education. 1908. 274 p.

NEW BUILDING

May 14, 1909, the Trustees voted to build an addition to the Library building, to be three stories high and to conform to the architecture of the present building. The size of the addition is 112 x 54 feet and it is connected with the present building on the first and second floors by a corridor 30 ft. in length. The first floor is to be used as a Library and Reading Room for the Collegiate Department, while the second and third floors are to be devoted to the purposes of the newly established Children's Institute.

The entire third floor will be used as a Pedagogical Museum. This has for the most part yet to be developed. The service which a collection of illustrative apparatus, charts, diagrams, etc., bought and made can render to education is incalculable. In Europe these institutions are centres of educational activity, loaning their material far and wide to schools much as libraries loan books, giving demonstrations on Saturdays, while the directors are always alert to find every kind of model, elementary scientific apparatus, choice school supplies, sometimes even text-books, collections and series of pictures. A school building or room unsupplied with all these labor-saving devices, which now contribute so greatly to facilitate nearly every educational process, is almost like a body without a soul. Everything from cuts and models in wood and plaster, of utensils, houses, dress, illustrating life in ancient Greece and Rome, even to scientific toys, not excluding some sleight of hand apparatus, is now drawn upon. Our own collection in these fields, although considerable, is at present not so large as it is unique. Considerable new material is now being ordered and will be displayed.

Meanwhile we have several hundred wall charts specially made for and under the direction of the professors in the Departments of Psychology and Education which are labelled, card-catalogued, and used in instruction but kept here. They cover such topics as the senses, growth of the body, studies of memory, number forms, voice, children's drawings, degeneracy, sex, interest, adolescence, truancy, heredity, moral defects, emotions—such as fear, anger, love—puzzles, brain and nerves, automatisms, delinquency, writing, arithmetic, fatigue, health, English, French, German and other school curricula and organizations of many kinds, classifications in various departments, *e. g.*, of languages, diseases, biological species, races of men, etc., charts illustrating the history of philosophy, gesture, facial expression, educational buildings, relations between phyletic and ontogenetic, the development of the history of mankind, distribution and migration of animals, and many other topics.

II. CORRESPONDENCE DEPARTMENT OF THE CHILDREN'S INSTITUTE

By **Theodate L. Smith, Ph. D.**

Pending the completion of the new building, a large room on the first floor of the library (25 x 30 ft.) has been devoted to the work of the Institute. This room has been fitted up with shelving, having at present 416 ft., well filled with a collection of reports and literature bearing on child welfare, with one section assigned to educational topics. All books and bound periodicals relating to child study, to the collection of which the librarian, Dr. Louis N. Wilson, has given special attention for the last thirteen years, are provided for in the main rooms of the library and classified in the department of education. During the last year a large part of the time of one person has been given to the collection and classification of reports of societies and institutions in the United States and European countries relating to the welfare of children and adolescents. Among these are included as being of fundamental importance, all organizations for the aid and instruction of mothers. As no general list of such institutions exists, one of the difficulties encountered has been the finding out of how many and what organizations are at work and where they are situated. Some of the sources from which this information has been obtained are as follows: Mr. John Koren's special report on the "Benevolent Institutions of the United States," published in 1904 by the Census Bureau, includes orphanages, temporary and permanent homes for adults and children, day nurseries, hospitals, and dispensaries. Although only the general classification above given is attempted, this report has proved of great value not only for its universal lists, but it has been possible, by going through these selectively, to compile special lists which may be needed for purposes of research, *e. g.*, institutions for crippled or epileptic children, children's hospitals, foundling asylums, etc.

Most large cities publish directories of the local charities and philanthropies, some of which have branches or similar organizations in other towns and cities. Where federations exist, it has been possible to obtain from the secretaries the addresses of affiliated institutions. The Charity Organization Society of the city of New York publishes a directory which gives an approximately complete list, not only of the Associated Charities of the United States, but a more limited one of those in foreign countries, and a list of American Consuls who have expressed their willingness to co-operate in philanthropic work. Organized charities everywhere have been most generous and helpful in furnishing local lists of societies and institutions relating to child welfare. In some cases these lists are printed but in many others they have been specially prepared for the Institute at a considerable expenditure of time and labor. For the educational section, a list of the schools of forestry in the United States, a valuable, unpublished bibliography as well as a generous collection of pamphlets has been furnished by the U. S. Forest Service. The U. S. Commissioner of Education, Dr. Brown, has furnished the Institute with an unpublished list of the public school classes for backward and defective children and a bibliography of published articles relating to such work. This has been of especial value for a doctor's thesis still in progress. A number of American consuls have also furnished data for this study, and also lists of foreign philanthropic institutions. Hull House publishes a directory of social settlements in the United States and foreign countries and, like the Associated Charities, the settlements have proved valuable sources for collecting data on child welfare work. The Charity Organization Society of London publishes an annual register and digest of charities from which addresses of English Child Welfare societies have been obtained. For many agencies, there are no lists of any kind accessible and in these cases addresses must be obtained singly from any and every source, the chances being that any institution will be able to furnish some information in regard to at least one or two others doing similar work. In some cases, foreign child study periodicals or individual students of child study have been helpful. Since September some 2,500 postals and over 2,000 letters have been sent out, of which the net result is a collection of between three and four thousand reports and pamphlets, representing over eighty types of organizations devoted either wholly or in part to child welfare. In order to render this material readily accessible for use it has been roughly classified under the following headings:

Defective Children

*Schools for the Blind.
 “ “ “ Deaf (public and private).
*Institutions for the Feeble-Minded (public and private).
Institutions for Speech Defects.
Psychological Clinics.

Delinquent Children

Big Brothers Movement.
*Institutions for Delinquent Boys.
* “ “ “ Girls.
*Help for Girls who have gone wrong.

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*Institutions marked thus are represented in Worcester and vicinity.

*Juvenile Courts.
Psychopathic Institute (Chicago).
*Probation Work.
*Truant Schools.

Dependent and Needy Children

*Associated Charities.
*Children's Aid Societies (placing out system).
*Day Nurseries.
Industrial Schools and Homes.
Infant Asylums.
*Orphanages.

Hygienic Agencies

Fresh Air Work.
*Milk Commissions and Depots.
*Public Baths and Gymnasiums.
*Societies for the Prevention of Tuberculosis.

Moral and Religious Training

Church Clubs and Guilds.
Institutional Churches.
International Committee on Moral Training.
*Missionary Work.
New England Watch and Ward Society.
Purity Associations.
Society for Ethical Culture.
Societies for Moral Prophylaxis.
*Sunday Schools.
Temperance Work.
*Y. M. C. A. (Junior Clubs).
*Y. W. C. A. " "

Protective Associations

Censory Boards for Moving Pictures, etc.
*Consumers' League.
Child Labor Committee.
Humane Societies.
Protective Associations for Girls.
Juvenile Protective Associations.
Societies for the Prevention of Crime.
Societies for the Prevention of Cruelty to Children.
Society for the Prevention of Vice (New York).

Recreation

*Boys' Camps.
*Boys' Clubs.
Boyville.
*Children's Libraries.
" Theatre.
Girls' Camps.
Girls' Clubs.
*Park Commissions.
Playground Associations.
Shut In Societies.
Story Tellers' League.
*Vacation Schools.

Child Welfare Movements connected with Schools

*Kindergartens.
*Medical Inspection in Schools.
Open Air Schools.
Parents' and Teachers' Associations.
*Public Education Associations.
School Improvement Associations.
School Nurses.
Teachers' Clubs.

Relief for Sick Children

*Children's Hospitals (Memorial Hospital, Worcester, has children's ward).
Diet Kitchens.
*Dispensaries.
*District Nurses.
*Free Dental Associations.
Fresh Air and Convalescent Homes.
Institutions for Crippled Children.
* " " Nervous and Epileptic Children.

General Welfare Associations

*Mothers' Congress and Clubs.
Children's Bureaus.
*Children's Institute (Clark University).
*Child Welfare Conferences.
Child Welfare Exhibit (New York).
*Child Welfare Survey (Worcester).
Civic Leagues.
Stamp Savings System, Penny Savings, etc.
Relief and Aid Societies.
*Women's Clubs.

The method temporarily adopted for rendering this somewhat heterogeneous mass of printed and written material available for immediate use is that of placing all material relating to a given subject in large envelopes of heavy paper (9½ by 11½ inches) plainly marked with the title by means of rubber stamps and arranged on the shelves in alphabetical order under the general headings given above. Gradually bibliographies of the books and periodical literature relating to these subjects are being built up. These will be kept in special cases apart from the regular library catalogue, and it is hoped will, in time, form one of the valuable assets of the library for social workers and those doing research work along lines of child welfare. On topics where the movement is comparatively new as, for instance, open air schools or schools for mothers, clippings and references even to mere paragraphs and notes on the actual or probable establishment of stations in new localities are preserved, and the hints thus obtained are followed up by correspondence. Special attention has been given to the collection of reports and literature relating to institutions represented in Worcester, with the view of co-operating with the Worcester Survey and furnishing comparative data, *e. g.*, on milk commissions and depots, playgrounds, prevention of tuberculosis, district nurses, boys' clubs, juvenile courts and probation systems, public school work with defective children, etc. The library also furnishes to students engaged in research assistance in finding sources of information and obtaining data. In some cases, students from out of town have visited the university for longer or shorter periods because of the opportunity to obtain information on phases of work with childhood and adolescence not accessible elsewhere, and frequent requests for bibliographies and suggestions for courses in child study come from former students whose appreciation of the resources of the Clark Library grows with their experience in teaching. The collection of child welfare reports has also been consulted by people interested in social and philanthropic work both from the city and neighboring towns.

Another phase of the work is the answering of letters asking for advice and information on almost every topic connected with child study. This is not a new development but the establishment of the Children's Institute has naturally, not only caused an increase in the usual type of letters but so many inquiries in regard to the Institute itself have been received that it became necessary to standardize a letter containing a statement of the main facts, to which answers to specific inquiries could be added as occasion demanded. These letters come not only from all parts of the United States but from European countries, and there are five foreign child study associations (in England, Japan, Poland, Italy, Hungary), four of which now publish journals, who state that the original inspiration came directly from Clark University. The varied character of this correspondence is perhaps best shown by the following list of subjects taken directly from the letter files. A Southern association of college women asks for references and modes of obtaining information on the state care of backward and mentally defective children; a clergyman wishes to know how and where he may obtain information on the different phases of the boy problem; a member of the Polish Child Study Association writes for references to French, German, Italian and English articles on the imagination of children, studies having a pedagogical application being especially desired; other correspondents ask for references on children's sense of humor and on moral development; the secretary of a federation of boys' clubs requests a list of books which will be helpful to workers in boys' clubs. As this list was for the use of a large number of clubs, in sending it a request was made that at the end of the year it might be returned to the library with annotations as to the practical value of the different references. By such co-operative methods it would seem that a connection might be made between academic and social work that would be of mutual advantage. Inquiries in regard to boarding schools adapted to individual cases are constantly received and, so far as possible, an effort is made to obtain information as to the character and standing of different schools in addition to that contained in the usual prospectus. Many letters come from those who wish to start child study or mothers' clubs asking for advice and direction. A printed list of some of the best general books on child study, compiled by Dr. Wilson, and an index of the more than two hundred child studies published at the University during the last fifteen years has greatly facilitated work in this line, as a sufficient number of copies of them have been furnished as library publications or reprints from the *Pedagogical Seminary* to allow of copies marked in accordance with individual needs being sent to those who desired such references.

As there is little general knowledge of the scope and character of the different phases of philanthropic and charitable activities, and even social workers who know their own fields thoroughly may have little opportunity to become acquainted with the work of other organizations, it seemed that it might be useful to compile a series of brief accounts of the more important child welfare agencies represented in the collection of reports, such accounts to include date and place of organization, date of incorporation, specific purpose, number of children benefited, sources of income and amount annually expended. It soon appeared, however, that much of this data was unattainable except by special and extended research. In a few cases, well established societies have presented the Institute with a complete set of their reports, *e. g.*, the Massachusetts Society for the Prevention of Cruelty to Children and the Worcester

Children's Friend Society, but many organizations have, during the earlier years of their existence, either published no report or, at most, a brief financial statement, and even if complete sets of reports were obtainable they would often be of no especial value for research purposes, the main object of the report being to interest the public and raise funds, and not to furnish data for research. Reports issued by organized charities and institutions which are well up in methods of social work do furnish such data on many points and would, doubtless, be willing to include even more items of sociological and psychological value if these were suggested. In fact letters have been received from the heads of several institutions offering to co-operate with the Institute in just this way and also to put unpublished data at the disposal of any investigator wishing to use it. But there are also reports which may be read from cover to cover for the purpose of classification and the reader still be left in uncertainty as to whether the institution in question is intended for dependent or delinquent children, boys or girls, or both, and under what conditions children are eligible. It has also happened more than once that application has been made to the library for information as to the mode of procedure necessary for placing a child in an institution, although the applicant was already in possession of the annual report of the institution. Probably all these points have been stated in earlier reports and, being familiar to the management, repetition may seem unnecessary, but a preliminary paragraph containing such desirable information in clear and concise form unquestionably adds to the value of a report. A few institutions which do excellent work print no reports or do so only at irregular intervals, some, because of lack of funds, others, perhaps, because they attach no particular value to reports. Some of these, however, have been very kind in furnishing written data and requests for information not contained in the printed reports have often been very fully answered. The annual reports of the Conference of Charities and Corrections, covering a period of thirty-six years, have proved a mine of information and furnished data in regard to the growth and development of philanthropic work, not otherwise attainable. With the aid of these, the collection of reports of institutions, and information obtained by correspondence, brief sketches of a score or more of child welfare organizations have been compiled and the collection of data for others is in progress. In time, these may form the basis for a work on social psychology.

There is a possibility, as yet untouched, for the library to make a much needed connection between academic research and practical philanthropy and education. The statement is frequently made by social workers and teachers that although they know that in the researches on child and adolescent psychology there is much which would be of great value to them in their work, it is not in accessible form. Of the twenty and more child study periodicals, eleven are in German, five in English, four in French, one in Japanese and the others in Slavic languages. One journal has a summary in both French and German so that its contents are accessible to university students. Moreover, many of the best studies in English are in too technical and bulky a form to be useful to those whose chief energy is given to practical work. Library bulletins containing the gist of these studies and *résumés* of the most valuable of the French and German studies, in a form inexpensive enough to render them accessible to the army of teachers and workers with children, who cannot afford expensive periodicals, would meet a definite need. Such bulletins would of necessity require the co-operation of all members of the University engaged in the different problems of child study. Systematic co-operation with foreign child study and child welfare societies might be arranged by means of these bulletins. There is a long file of requests from foreign correspondents for information in regard to the Children's Institute, and a regular exchange of publications is frequently suggested. The foundation for such international co-operative work has already been laid through correspondence and the *Institut Solvey* has already proposed to establish through authoritative representatives of the various sciences in each country, a bibliographical exchange of both published and unpublished researches, that duplication of work may be avoided. In such a scheme of international co-operation, the Children's Institute should certainly do its part.

III. SCHOOL HYGIENE IN THE CHILDREN'S INSTITUTE

By Wm. H. Burnham, Ph. D.

During the past year no special work in school hygiene in connection with the new department of the Children's Institute has been done; but almost from the establishment of the University Department of Education, twenty years ago, a large place has been given to this subject and the work done has anticipated the requirements of a department especially devoted to child welfare. It is hoped that the formal connection with the Institute and the new opportunity and added facilities of the new department may give increased emphasis and importance to the subject.

During recent years we have come to see the need of caring for the health of school children in a more definite and concrete manner than was formerly possible. A new science of school hygiene has developed with a solid basis of scientific fact and a new profession is arising—that of the health supervisor in the school; and the emphasis on the need of hygiene has been tremendously increased. When we find that more than 90% of the mortality from the ordinary contagious diseases of childhood occurs before the age of ten, and that the relative mortality of these diseases is much greater at this age, that furthermore defects of the sense organs, adenoids, and probably the beginnings of other defects occur here, it appears that the aim of education in these early years should be primarily to safeguard the health of children and foster normal development. The modern studies of contagious disease show also the great saving of time and the money of the taxpayer as well as of health which result from the scientific method of caring for such diseases.

Certain facts established by modern neurology also have increased the emphasis on school hygiene. The studies of the conditions of efficient brain activity, of the effects of fatigue, and the like, show the importance of a period of study arranged from the point of view of scientific hygiene and of optimum conditions for school work.

In recent years the field of school hygiene has been enormously widened and it is now seen that every subject of instruction and every pedagogical principle and method has its hygienic aspect which must not be ignored. This part of the subject, now called the hygiene of instruction, aims not merely at the avoidance of overwork but at the development of such habits of mental activity as shall be prophylactic against nervous breakdown. This new field especially concerns teachers and to it they can especially contribute.

While in Clark University much attention has been given to the general field of school hygiene, special attention has been devoted to the personal hygiene of the school child and to the hygiene of instruction.

A large part of the papers published by members of the University in this field have been devoted to subjects connected with the hygiene of instruction as will be seen from the following partial list:

BOBBITT, J. F. Growth of Philippine Children. *Ped. Sem.*, June, 1909, Vol. XVI, pp. 3-34.

BURK, FREDERIC L. From Fundamental to Accessory in the Development of the Nervous System and of Movements. *Ped. Sem.*, October, 1898, Vol. VI, No. 1, pp. 5-64.

—— ——. Growth of Children in Height and Weight. *Am. Jour. of Psych.*, April, 1898, Vol. IX, pp. 253-326.

BURNHAM, WM. H. Outlines of School Hygiene. *Ped. Sem.*, June, 1892, Vol. II, pp. 9-71.

—— ——. Motor Ability in Children: Development and Training. Proc. Am. Inst. of Instruction. Boston, 1894, pp. 127-140.

—— ——. Impurities in the Air of Schoolrooms. North Western Monthly, July, 1897, Vol. VIII, pp. 75-80.

—— ——. Bibliography of School Hygiene. Proc. N. E. A., 1898, pp. 505-523.

—— ——. School Hygiene. Johnson's Universal Cyclopædia. New edition, 1899, Vol. X.

—— ——. School Diseases. *Loc. cit.*

—— ——. Mental Hygiene. *Loc. cit.*

—— ——. Health Inspection in the Schools. *Ped. Sem.*, April, 1900, Vol. VII, pp. 70-94.

—— ——. The Ideal Schoolhouse. The World's Work, June, 1901, pp. 866-871.

—— ——. Fatigue. N. Y. Teachers' Monographs, December, 1902, Vol. IV, No. 4, pp. 20-28.

—— ——. The Hygiene of the Kindergarten Child. Proc. of the Depart. of Kindergarten and Elementary Educ. N. E. A., June-July, 1904, pp. 416-422. Also Kindergarten Review, October, 1904. Vol. XIV, pp. 65-71.

—— ——. A Contribution to the Hygiene of Teaching. First Congress of School Hygiene, Nuremburg, April, 1904, IV, pp. 483-487.

—— ——. The Hygiene of Home Study. *Ped. Sem.*, June, 1905, Vol. XII, pp. 213-230.

—— ——. Health Inspection in the Public Schools. Worcester Magazine, June, 1905, Vol. VIII, No. 6, pp. 120-124.

—— ——. Education from the Genetic Point of View. Proc. Nat. Educ. Assoc., Asbury Park, N. J., 1905, pp. 727-732.

—— ——. Hygiène scolaire aux Etats-Unis. 1er Congrès International d'Education et de Protection de l'enfance dans la famille. Liege, September, 1905, Section 1, pp. 94-104.

—— ——. Report of the Committee on School Hygiene of the Worcester Public Educ. Assoc., *Ped. Sem.*, June, 1906, pp. 230-244.

Burnham, Wm. H. The Hygiene of the Teeth. *Ped. Sem.*, September, 1906, pp. 293-306.

——. School Work in its relation to (a) The duration of the lessons. (b) The sequence to the subjects. (c) The season of the year. Sec. Int. Congress on School Hygiene. London, 1907, Vol. I, pp. 33-37.

——. The Hygiene of Drawing. *Ped. Sem.*, September, 1907, Vol. XIV, pp. 289-304.

——. The Hygiene of the Nose. *Ped. Sem.*, June, 1908, Vol. XV, pp. 155-169.

——. The Problem of Fatigue. *Am. Jour. of Psychology*, July, 1908, Vol. XIX, No. 3, pp. 385-399.

——. One Session a Day, or Two, in the Public Schools? Hygiene and Physical Education, March, 1909, pp. 1-11.

——. Cleanliness in the School Room. Good Health, August, 1909, pp. 596-600.

——. The Hygiene of the Kindergarten. Kindergarten Review, June, 1909, Vol. XIX, No. 10, pp. 590-599.

——. The Need of More Attention to Health in the Public Schools. Proc. 46th Annual Convocation of the Univ. of the State of New York. No. 443, March 15, 1909, pp. 23-25.

——. Food for Children and School Lunches. The Delineator, March, 1910, Vol. LXXV, No. 3, p. 225.

——. The Hygiene of Physical Training. Reprinted from Phys. Educ. Review, February, 1910, 40 p.

Chrisman, Oscar. The Hearing of Children. *Ped. Sem.*, December, 1893, Vol. II, pp. 397-441.

Conradi, Edward. Psychology and Pathology of Speech Development in the Child. *Ped. Sem.*, September, 1904, Vol. XI, No. 3, pp. 328-380.

Croswell, T. R. Amusements of Worcester School Children. *Ped. Sem.*, September, 1899, Vol. VI, No. 3, pp. 314-371.

Curtis, Elnora W. Out-Door Schools. *Ped. Sem.*, June, 1909, Vol. XVI, pp. 169-194.

Dresslar, F. B. A Sketch of Old Schoolhouses. *Ped. Sem.*, June, 1892, Vol. II, No. 1, pp. 115-148.

——. Fatigue. *Ped. Sem.*, June, 1892, Vol. II, No. 1, pp. 102-106.

Eby, Frederic. The Reconstruction of the Kindergarten. *Ped. Sem.*, July, 1900, Vol. VII, No. 2, pp. 229-286.

Hancock, John A. A Preliminary Study of Motor Ability. *Ped. Sem.*, October, 1894, Vol. III, pp. 9-29.

Johnson, G. E. Education by Plays and Games. *Ped. Sem.*, October, 1894, Vol. III, pp. 97-133.

Meyerhardt, M. W. Economical Learning. *Ped. Sem.*, June, 1906, Vol. XIII, No. 2, pp. 145-184.

Sears, Charles H. Home and School Punishments. *Ped. Sem.*, March, 1899, Vol. VI, No. 2, pp. 159-187.

For several years the University instructor in school hygiene has served as Chairman of the Committee on School Hygiene of the Worcester Public Education Association. The yearly reports of this Committee have concerned such subjects as the following: Physical Education; Medical Inspection; Defects and Contagious Diseases; Tuberculosis; Cleanliness; Recesses; Dental Inspection; School Sanitation.

In connection with the work of the Worcester Child Welfare Conference the instructor of this department has served on the

Committee on School Hygiene. One or two students also have made investigations in connection with the Social Survey under the auspices of this Society. The work of one of these students, who investigated especially the conditions of the milk supply, is practically complete.

The emphasis placed on school hygiene was again illustrated at the recent scientific meetings, on the occasion of the twentieth anniversary of Clark University. At these meetings much attention was given to this subject and lectures largely concerned with problems in the hygiene of instruction and mental hygiene were given.

It is probably the first time in a university celebration that school hygiene has been given a special place as a scientific subject, and perhaps even to some of the scientists present it was a revelation to find that the problems of schoolroom sanitation and schoolroom instruction could be treated in a thoroughly scientific manner. The lectures in this subject were given by Dr. Leo Burgerstein, of the University of Vienna, co-author of Burgerstein and Netolitzsky's *Handbuch der Schulhygiene*, and probably the leading authority of the world in this field. Dr. Burgerstein's first lecture dealt largely with the ventilation and lighting of schoolrooms and problems of posture and penmanship, the second with co-education in the light of European experience, the third with some aspects of the relations of body and mind. Of special significance, perhaps, was the lecture on co-education and hygiene. The lecturer résuméd and discussed the results of modern scientific studies which show physical differences between boys and girls at the age of puberty.

Books and Apparatus. A large collection of books and periodicals both foreign and English are accessible in the University library. A large number of charts illustrating the results of scientific investigation in school hygiene have been prepared. The nucleus of a laboratory and museum including apparatus for testing CO_2, hygrometers, devices for illustrating norms for school furniture, adjustable seats and desks, charts for eye tests, and other illustrative material — has been already collected and more is to be added.

Rooms have been provided for this sub-department in the new building. This will make the books and periodicals on school hygiene in the University library easily accessible, and also illustrative material and apparatus in school hygiene possessed or already ordered by the department. Among the latter are the following:

Pettersson-Palmqvist's Quantitative Air Tester. Kohlensäureapparat.

Hohmann's Sling Psychrometer.

The Tycos Hygrodeik.

Pleier's Raumwinkelmesser. Karlsbad, Austria.

Walter's working drawings for different sizes of school desks. Vorarlberg, Österreich.

Seggel: Sehprobentafeln zur Prüfung des Lichtsinns. München. Litt. artist. Anst. von Theodor Riedel und Fr. Basserman.

Sehproben und Sehprüfung. Optotypi Pflüger. 2. Auflage.

A school desk and seat for demonstrating the measurements of the Vienna School Desk Expert Commission.

Many pieces of apparatus for making tests of school children are also available in the laboratories of other departments, such as apparatus for making the standard measurements, dynamometers, Callie's audiometer, test cards and the like.

Besides periodicals upon general hygiene and biology the University library contains the following magazines devoted entirely or in part to school hygiene:

American Physical Education Review. J. H. McCurdy, M. D., editor, Springfield, Mass., 1896-

Das Schulhaus. Karl Vanselow, Berlin, 1899-

Das Schulzimmer. H. Th. Matth. Meyer, Charlottenburg, 1903-

Die Experimentelle Pädagogik. W. A. Lay und E. Meumann, Leipzig, 1905-1907, Vol. 1-4. Continued as Zeitschrift für Experimentelle Pädagogik. 1907-

Die Gesundheitswarte der Schule; Monatsschrift für Stadt- und Landlehrer. Redigiert von Dr. Alfred Baur, Leipzig, 1903-

Gesunde Jugend. Herausg. von Dr. H. Selter und Prof. K. Roller, Leipzig und Berlin. Verlag von B. G. Teubner, 1900-

Hygiene and Physical Education. Wm. W. Hastings, editor, Springfield, Mass., March, 1909-Jan. 1910.

L'hygiene scolaire. Masson et Cie, Éditeurs, Paris, 1903-

Internationales Archiv für Schulhygiene. Edited by Dr. A. Mathieu and Sir Lauder Brunton. Herausg. von Dr. A. Johannessen und Dr. H. Griesbach. Leipzig, 1905-

Jahrbuch für der Schweizerischen Gesellschaft für Schulgesundheitspflege. Kommissionsverlag von Zürcher und Furrer. Redaktion: Dr. E. Zollinger, Zürich, 1900-

Jahrbuch für Volks- und Jugendspiele. herausg. von Hofrat Prof. H. Randt. Leipzig und Berlin, 1894.

Reports of the Education Committee of the London County Council. Submitting the report of the Medical Officer (Education). Spring Gardens, S. W., 1904-

Sammlung von Abhandlungen aus dem Gebiete der Pädagogischen Psychologie und Physiologie. herausg. von Th. Ziegler und Th. Ziehen. Berlin, 1897-

School Hygiene; issued by the American School Hygiene Association, Boston, 1908-9. Continued in Hygiene and Physical Education.

School Hygiene. School Hygiene Publication Co., London, 1910-

The Journal of Educational Psychology. J. Carleton Bell, Managing Editor, Baltimore, 1910-

The Psychological Clinic. Lightner Witmer, Ph. D., Editor. Philadelphia, 1908-

Vierteljahrsschrift für körperliche Erziehung. herausg. von Dr. Viktor Pimmer. Wein. 1905-1909. Continued under the name of Körperliche Erziehung. Zeitschrift für reales Leben.

Werde Gesund. Heraufg. von Dr. Georg Liebe. Erlangen, 1906-7. United with Der Arzt als Erzieher. Heraush. von Otto Gmelin and Dr. Thedor Leffing. München.

Zeitschrift für Hygiene. herausg. von R. Koch und C. Flügge. Leipzig, 1890-

Zeitschrift für Kinderforschung mit besonderer Berücksichtigung der pädagogischen Pathologie. Hermann Beyer and Söhne. Langensalza. 1907- Vols. 1-11 (1896-1906), under the title Die Kinderfehler.

Zeitschrift für pädagogische Psychologie Pathologie und Hygiene. herausg. von M. Brahn, G. Deuchler, O. Scheibner. verlag von Quelle & Meyer. Leipzig, 1889-

Zeitschrift für Schulgesundheitspflege. Redigiert von Dr. Stephani in Manheim. Verlag. von Leopold Voss. Hamburg, 1888.

Courses. The following University courses in School Hygiene have been given. At least one course one hour a week for the whole year has been given each year to a good number of students almost from the opening of the University.

A. The Hygiene of the School Child. This course is supplementary to the course on the hygiene of Instruction given in 1904-05. Some of the more important chapters in modern school hygiene will be considered including such topics as:—The conditions that determine growth and development. The general principles of somatic and mental hygiene. The hygiene of the senses. Modern studies of defects of sight and hearing. School diseases. The hygiene of the voice, the mouth, the teeth, the nose. Mental diseases and faults of children. Neuroses of development. Tests of ability to work and of physical condition. Medical inspection. The hygiene of discipline. The development of healthful mental activity. Hygiene of memory, of attention, and of feeling. The hygienic aspect of some psychological studies.

B. School Sanitation and School Diseases. Modern studies of the sanitary condition of schoolhouses and school diseases. The fundamental principles of hygiene in regard to building, playgrounds, heating and ventilation, lighting, school furniture, etc. Studies of school diseases; medical inspection and its results. The aim of education from the point of view of hygiene. Present problems, etc.

C. The Hygiene of Instruction. Mental hygiene and the hygiene of instruction. The laws of nervous activity in relation to problems of instruction. Fatigue. The period of study. The hygiene of the kindergarten. The hygiene of spelling, reading, writing, arithmetic, manual training, physical training, etc. The hygienic aspects of grading, of examinations, of discipline, of punishment, etc.

It is planned to give this last course, Course C, in the academic year 1910-11.

IV. WORK WITH THE BACKWARD AND SUB-NORMAL IN THE CHILDREN'S INSTITUTE.

By HARRY W. CHASE.

The work of the writer in connection with the sub-normal department of the Children's Institute was begun only the first of January and as a result much is still in a formative stage.

VISITS TO OTHER INSTITUTIONS. In order to gain some knowledge of what was being undertaken by other investigators in the same line, a two weeks trip was first made to some of the institutions and clinics which it seemed were in a position to furnish the most in the way of orientation for the new work. A few points may be of interest in this connection. Some days were spent at the New Jersey State Training School for the Feeble-minded at Vineland. Valuable work is being done here by Dr. Goddard in the research laboratory in connection with the institution. The problem is being attacked on its social side by studies in the heredity of the deficient children of the institution, with the assistance of two field workers. Much positive evidence is being gathered to show the vast part played by heredity in the production of defectives, and the suggestion is even ventured that the transmission of such defects may follow the Mendelian laws.

On the psychological side, the attempt is being made to work out series of tests, sensory and motor, which will accurately classify deficient children with regard to the degree of defect present. On the motor side certain correlations seem to be established by this work which show that the more serious the defect the less the lung capacity and power of grip as compared with the height and weight of the child. The time of replacing the blocks in the form board also seems to correlate pretty well with the degree of defect. The Binet tests, which attempt to give norms for each age, are also being tried, and Dr. Goddard is inclined to think that they are fairly accurate in their results. Various other motor and sensory tests are being tried out, but as yet are not standardized.

The clinic of Dr. Witmer at the University of Pennsylvania was seen. This attacks a little different phase of the problem. Here the attempt is made to apply psychology to the diagnosis of defects and the separation of the sub-normal from the backward child. The children are brought to the clinic for a mental examination, and, if there is reason to suspect physical defects, are given a thorough examination by specialists and reports sent back to the clinic. If necessary, operations, glasses, etc., are advised, and the attempt is made to follow up the children and see if progress results under improved conditions. The work has been going on for a number of years, and is well correlated. Little attempt has here been made to work out tests which will serve as standards, each case being treated rather as an individual matter to be examined into on its own merits.

The work of Dr. Healy in connection with the juvenile court of Chicago, which the writer saw, touches still another aspect of the problem. Here Dr. Healy, himself a neurologist, with the assistance of Miss Fernald, a trained psychologist, examines the youthful delinquents of the city. The presumption is that a child who is brought for the second time before the court after being once warned is on *a priori* grounds open to the suspicion of defect, and consequently all such second offenders are turned over for examination, physical and mental. Dr. Healy has elaborated a very inclusive series of blanks which include the social and personal aspects of each case, the most complete which we have seen. Here the Binet tests, those of Thorndike and Miss Norsworthy and others are being used, and the attempt is at present being made to develop some sort of simple educability tests which will be independent of language.

Psychology is also being applied to the sorting out of defectives by the Child-Study Bureau of the Chicago public schools, under the direction of Dr. MacMillan. Children are brought to the office and are assigned on the basis of an examination to special classes or institutions, or medical treatment is prescribed. Valuable reports have been issued and standard tests described.

The Illinois state institution at Lincoln was also visited. Here Dr. Huey is beginning work as psychologist of the institution, with a field which gives promise of rich results. The work here has been going on for so short a time that new tests have as yet not been devised.

In New York the institution at Randall's Island was visited. Here practically nothing of a psychological nature is attempted. Miss Norsworthy, who has devised well-known tests, was seen, as were several officials connected with the special classes of the city. As it was vacation time, the special classes must be reserved for a future visit. Among the other institutions visited were the private ones of Haddonfield, N. J., under the direction of Miss Bancroft, and that of Dr. Groszmann, at Plainfield, N. J. These proved suggestive in showing what can be done by education for defectives.

Dr. Whipple, at Cornell, kindly showed the apparatus and tests which he has standardized, many of which are new and valuable, and have the advantage of being made under standard conditions, so that they can be easily reproduced.

BEGINNINGS OF WORK HERE. News of the fact that a department of this sort was to be established had already been published, and a score of letters had already come in from parents who desired to bring children here for examination and recommendation. Some, in their anxiety for the examination, had written two or three times to know when they could come to the University. To all these the announcement was sent out that the department was now in readiness for work, and replies began to come in making appointments.

These letters were not only from people in this state, but from the other New England states and even from greater distances.

It had already been decided that examination of these cases ought to be conducted both by a physician and by a psychologist. This would have the advantage of bringing to bear two different points of view on each case, and points would suggest themselves from both sides in conference which might not stand out if both functions were united in the same individual, whether he were a psychologist with a medical training, or a physician with a psychological background. The department has been exceedingly fortunate in securing for the medical examination the services of D. F. O'Connor, M. D., of this city, a man whose Vienna training and years of practise in this city and at the State Industrial School at Lancaster, have fitted him especially for this sort of work. His knowledge of diseases of the eye, ear, nose and throat is especially valuable for the work, for so many defects of this sort are found in the class of children who come for examination. His services have been invaluable, and he has given freely of his time, at the cost of some personal inconvenience to himself.

Board and Lodging. Dr. Bemis of this city also kindly secured rooms near the University where parents and children might stay while in the city if they so desired. On account of the difficulty of finding board and lodging near the University, this has been a great convenience, and most of the parents coming from out of town have availed themselves of the opportunity.

Material Equipment. Two connecting rooms on the top floor of the main building were placed at the disposal of the department. The inner is used for the examinations and tests, the outer for an anteroom. There is also across the hall the comfortably furnished women's rest room, which is used by the department in case of need as a supplementary waiting-room. The test room opens directly into the psychological laboratory, making it easy and convenient to set up desired apparatus without delay. Apparatus for the special needs of the department is being bought as seems necessary, but the effort is made to duplicate as little as possible apparatus already in possession of the other departments, which can be loaned for our purposes. Thanks to the courtesy of the other departments, and especially to the department of experimental pedagogy, considerable apparatus has in this way been placed at our disposal. We have at present apparatus for the more common physical measurements, for the testing of vision, the McCallie audiometer for the testing of hearing, a set of the simple apparatus necessary for the Binet and de Sanctis tests, a form board of the type devised by Dr. Goddard, and sufficient other apparatus either set up or at our disposal, thanks to the courtesy of the psychological department, to enable us to carry out practically any test that we may desire. In some cases it seems desirable that a more simple form of apparatus than the one ordinarily used in the laboratory be worked out, which will be adapted better to our needs. A simple form of ergograph is especially desirable, and the attempt is at present being made to devise one. Mention should also be made of the apparatus for the testing of blood-pressure, a branch of the work which is under the supervision of Dr. Osborne, who has had considerable experience in this line.

Anamnesia and Question Blanks. But the question of material eqipment is of course only one side of the matter. We were confronted at the beginning of the work by two questions especially. The first was as to the best method of getting from physicians, parents and others every scrap of information possible which would throw light both on the personal history of the child and on those points in the family history which might have any possible bearing on the case. It was decided that the best way to accomplish this would be, first, to send a blank to the family physician containing questions to be answered by him and the blank returned by him without passing through the hands of the family; and second, to devise a series of blanks to be answered in the presence of the examiners by the parent or guardian of the child. It is always found that parents overestimate the capacities of such children. Over and over again in our letters the phrase is used, "He is such a thoroughly normal child in many respects."

Consequently the aim was to make the questions as specific as possible, and at the same time numerous enough to cover all points that might throw light on the question. It was attempted at the start to make out the blanks on the principle of inclusion, and later to drop out such material as it was found was not necessary. The blanks in this formative stage have not been printed. They are now being worked over into some sort of final shape which will admit of their being printed, unnecessary questions cut out and some others inserted. The blanks themselves consequently cannot be given in this report, but a general description of them may be. We are indebted here to the collection of blanks from different institutions for defectives made by Dr. Smith, to the very inclusive blanks of Dr. Healy, to institutions visited, and to the literature of the subject.

The blanks designed for the family physician cover first, the family history, beginning with the grandparents, diseases of which they died, age of death, blood relationship between them, the question of any history of the use of drugs, alcohol, imbecility, neurotic conditions, specific or other diseases that might contribute to defective descendants. Then the history of the parents is taken up, occupation of each, age at birth of the child, the history of each with regard to disease, alcohol and drug use, the number and physical and mental condition of the other children, the condition of the mother during pregnancy, are inquired into. Regarding the child the question of birth conditions is gone into; was birth at full term, natural or with instruments, the condition of the child immediately after birth, the nutrition of the child, the age of walking and talking, any peculiar conditions during infancy, the occurrence of spasms, etc. The question is asked as to the diseases which the child has had, with his condition on recovery from these; whether epilepsy or hysteria, paralysis, have been manifest, and, if sub-normal, the age at which peculiarity manifested itself, with a history of the measures employed for relief, with their success.

It is the intention of the examiners that the physician should be paid a *fee* by the parents for filling out the blank. Unfortunately in the majority of cases which have so far been seen, it has been impossible to get this blank filled out, in most cases for the reason that the family has had no one physician for a long enough period to enable him to give sufficient information to be of value. It seems, however, very desirable that the blank should be used where possible.

There are two types of blanks used by the examiners at the clinic, and to be answered by the parents or guardians of the child. The first deals with the case from the medical side, and considers family and personal history as noted above, with more details of the history of the child, the diseases which he has had, injuries which he has sustained, conditions of dentition. The present condition of the child is then examined from the medical side. The blank for use here includes an examination of hearing, vision, the condition of the throat, glands, tonsils, adenoids, the presence of physical stigmata, general nutrition, reflexes, and other conditions which may be significant.

Dr. O'Connor summarizes this side of the work as follows:

> "The physical examination of backward children often, if not always, may determine a definite or contributory cause for the retarded condition of the child and, therefore, suggest a remedy when applicable.
>
> "Hereditary influence may manifest itself when a parent or the relatives of parents have been epileptics, alcoholics, neurotics, etc.
>
> "A family history of syphilis or tuberculosis is also suggestive.
>
> "The mother's condition, mental and physical, during gestation and at the birth of the child, the character of labor, use of instruments, accidents and injuries at this time are important data.
>
> "The diseases of childhood, as for example: diphtheria, scarlet fever, whooping cough, and the more important meningitis (pneumonia also on account of a possible doubt in diagnosis from meningitis or as a complication) and a history of the after effects, mental and physical, may throw some light on the case.
>
> "Examination of the eyes, ears, nose and throat, as well as inspection of manifest bodily defects often indicates a contributory cause."

The second type of blank deals with the mental side of the case. In this questions are asked as to the temperament of the child, whether nervous, apathetic, moody, obedient, easily led, truthful, etc. The attempt is made to ascertain the relations of the child to his parents, to other children of the same and younger age, to the opposite sex, his chief interests, methods of spending his leisure time, and the general environment of the child. If the child has been at school his educational history is gone into; the time of starting school, his progress, the character of school attended, his attitude toward his studies, teachers and playmates. If he has left school the reasons for this are gone into. It is regarded by both examiners as a very important side of the work that both personal and family history should be carefully gone over, and for this the co-operation of the parents is of course necessary. In most of the cases seen so far, the parents have come prepared to deal frankly with the examiners.

The second question confronting us was as to the *nature of the psychological tests* which should be used for the mental examination of the children.

To one who comes from normal psychology into this work, the first impression is that, notwithstanding the fact that able investigators are working in this field, there is still great confusion and great lack of norms. Tests are being used on subnormal children, and used with fairly accurate results by those with some background of experience in the field, but many of these same tests have never been tried out on normal children. The tests which are most in use, those of Binet, were worked out on the children of two schools in Paris, but no systematic attempt has been made in this country to see how children grade up by their use. They are being taken up by teachers for defectives, and on that account the need for reliable norms seems all the more pressing.

The tests of Thorndike and Miss Norsworthy are in part open to the same objection, and a great many of them we find too complex for the majority of the children who come to us. Those devised by Professor Whipple have the advantage of being standardized better, but there is the disadvantage that the work has been done on older students, so that many of them are not applicable to our needs. Not to continue at length, the same lack of norms is everywhere apparent. We are thus in the peculiar position of attempting to grade sub-normal children by tests to which it is not exactly known how normal children react. So far as the merely practical side of the work goes, this objection is not serious enough to insurmountably handicap us, but from the scientific point of view it is a serious obstacle. The establishment of norms for the children of this vicinity would be such a valuable contribution that I would strongly recommend that investigations along this line be undertaken as soon as possible, perhaps in connection with one or several masters' theses, under the close direction either of the department of experimental pedagogy or of the department of sub-normal children.

In selecting tests, it seemed again best to proceed here by including all that seemed in any way workable, and dropping those that were found not to be serviceable. Accordingly, practically all the tests seen at the different institutions visited, with a few exceptions which did not seem suited to our purpose, have been utilized. These include the Binet tests of both series, the first, a series of thirty tests of increasing difficulty, mostly of a simple nature, which can be carried out without the use of much apparatus; and the second series which attempts to give a series of tests for children from the ages of five to thirteen, by which the mental age of the child may be determined. The ground of the de Sanctis tests is for the most part covered by these and other tests, but they have been used as seems advisable. Those of Professor Thorndike and Miss Norsworthy, as already stated, are rather complicated for our purposes, but in particular their memory tests by lists of related and unrelated words, which the child is asked to repeat after one reading, and the association tests, which consist of asking the child to give the opposites of one list of words, the words of which the words in a second are a part, words which are a part of words contained in a third list, and a list of adjectives for which the child is to give associated nouns, are valuable for use with the older children. The literature on tests of intelligence was gone through so far as possible, and those tests which seemed applicable were chosen for trial. Here the trouble was that many of those given were too difficult for our purposes. This part of the work is of course far from being complete, and new tests are constantly being added.

The tests in this field arrange themselves naturally under two heads; first, those of motor co-ordination. Here many of these commonly in use are utilized, the ability to perform movements requiring co-ordination of the larger muscles is tested by having the child stand, walk, stand on one foot, with eyes open and closed, hop, stoop, etc. For the muscles of hands are used the tests of tying knots, stringing beads, picking up small objects, buttoning and unbuttoning clothes, spreading fingers. The control of the tongue, the vocal muscles and those of the face is also investigated.

The testing of the special senses falls in the case of vision and audition under the medical side of the work. A color test is, however, added. For the testing of the dermal sensibility the æsthesiometer is used. Here the main object of the test, the establishment of a threshold of discriminability, is many times impossible, but the interesting result, already mentioned by Binet, does stand out, that many deficient children, when the points are placed in irregular order at distances greater and less than the limen, answer in a sort of rhythm, that they fed one point, then two, then one, and so on in alternation. The other special senses have up to the present time been tested only roughly.

Tests of perception include, in the visual field, the perception of form, color, size and distance, auditory perception of tone (a test which has been little used owing to practical difficulties), and the tactual perception of familiar objects. Tests of memory involve immediate memory for words, sentences and numbers, the memory of selections read by the child and read to him, and the memory for pictures and familiar objects shown. Tests of memory for a longer time have been necessarily based on the memory of events which have occurred in previous sessions at the clinic. Attention tests used include, for the duration of attention, the rough test of tapping in unison with the metronome. For the attention-span, the number of forms or colors seen with one short exposure is used. The uniformity of attention is tested by simple reaction times, which show, in the case of the children tested, a great mean variation, and by the variations in the time and accuracy of counting groups of 100 letters or marking out a definite number of letters. An attention test now to be added is that of the power of voluntary attention and effort, measured by the amount of increase of the maximal rate of tapping over the normal rate, as devised by Dr. Kuhlmann of this University. Tests of suggestibility include the asking of suggestive questions as to pictures seen and objects shown, in the manner of the German investigators. This side of the work is badly in need of further standardization. For tests of association, besides those already mentioned above, a series of words is used on all children of a sufficient grade of intelligence, to which reaction is made by the first associated word, the time of association and the word being noted. Several lists have been tried, but none has so far been found which is wholly satisfactory, though data have been obtained which will make the compiling of a more suitable list possible in the near future. This is, so far as I know, in its systematic use, a feature peculiar to the work here, and seems to be proving important for the information which it gives as to the nature of the mental processes of the child, when interpreted as to the formal nature of the reactions, their time, and their content. It is also suggestive as a starting point for a sort of psychoanalysis which shows up the child's interests and tendencies.

Other tests include such things as the ability to deal with mathematics, with questions of general information, with simple puzzles, with the interpretation of simple fables and the like, and the answering of questions which involve the analysis of more or less complex situations.

These may serve to give some idea as to the general nature of the tests used. In all over a hundred have been collected, and more are being constantly added, while some which seem ill-fitted for the work in hand are being weeded out.

Actual work in the department was begun the last of January. In all in the three months ending with the first of April, the examiners have seen twenty-one cases, some of which are still under observation. These are of both sexes in almost equal numbers, and range from the ages of five to seventeen, the greater number being children from eight to twelve years of age. These were at first mostly brought from outside the city, but lately most of our cases have been of people in or near the city, who have kept the child at home and brought him back and forth for the examination. In the cases with which we have finished, recommendations have been made as to hygiene, exercise, and mental regime to be followed, and, where it seemed advisable, recommendation has been made that the child be placed in an institution. A list of private institutions of this character has been made by the library department of the Institute, of which we have availed ourselves in giving addresses to those who desired them. Perhaps the best way in which to present the actual work will be to give summaries of a few cases, with the methods used and the recommendations made.

Case A. is that of a boy of seventeen living in a suburban district. The family history, so far as could be ascertained, is good. Two older brothers are living, both normal. One younger sister died at the age of two, of what was described as "brain fever." There was nothing abnormal in the conditions of pregnancy nor of birth. The child was fed artificially, was a sickly child, and did not walk until the age of two. At four he had a probable epileptic fit, and at eight epileptic attacks began to occur monthly and lasted until the age of fourteen, when they disappeared. These always occurred in bed, and were attended by frothing at the mouth, biting of the tongue, and spasmodic movements; all this lasted only a few seconds, when the boy would go to sleep and afterwards know nothing of the attack. The boy entered school at six and continued until fourteen, but was unable to get beyond the fifth grade. In school he was indifferent toward his work, not very well behaved, and had attacks of solitude.

On the cessation of the attacks at fourteen he developed a strong Wanderlust, and ran away from home in all five or six times, jumping freights for his transportation. He was always found and brought back, though at one time his wherabouts were unknown for a period of two weeks, during which time he obtained a position in a mill in a nearby state, which he filled with fair satisfaction until the circumstances aroused the suspicion of the foreman, who wrote to the father (the boy had given his correct name and address). Since leaving school he has worked for his father, a florist. He does the work fairly well, with a little tendency to laziness and to fits of temper. After a day's work he is made to go to bed in the early evening, and his diet is strictly supervised. Excitement of any sort tires him greatly. He was brought to the clinic by his mother, who was anxious to know if anything could be done with the boy. Physically the boy had a dull expression, rather shuffling gait, no external stigmata, but the presence of Hutchinson teeth was noted. His vision and hearing were normal, his reflexes were in good condition. His height was 167 cms, his weight 56 kilos. The chest deflated gave 88 cms, inflated, 91.5. With the right hand the grip was 53 kilos, with the left 52. The head diameters were 7.1 and 6 inches, at points of greatest length and width. The head girth was 54 cms. Size, form, color, and distance were recognized. The test of tactual perception with the æsthesiometer gave, when the points were at zero distance, the sort of "one-two" rhythm referred to above. Tests of immediate memory gave a memory span for only five numbers. From a list of ten related words to be reproduced immediately by the subject, five were remembered, and the same from a list of ten unrelated words. . . Tapping in unison with the metronome presented little difficulty. In the counting of groups of one hundred letters, the subject showed an average time per hundred of one minute and nine seconds, and a mean variation of six seconds. His reaction tests showed an average of 155 sigma, and a mean variation of 50 sigma, which of course is not great during a series of twenty-five reactions. When given a stimulus word and told to associate freely with it as fast as possible for three minutes, he gave 59 words with many repetitions and pauses during which he had to be urged not to stop, and showed a tendency to simply name objects around him until he was made to close his eyes. He was also given a list of reaction words. The association times here averages about

2.5 seconds, and the reaction words show the prevalence of egocentric reactions (that is, the subject interprets the words as having personal relations) for example, to the word "wife" the reaction "my" is given, the word "dance" gives the reaction "I," etc. Many of his reactions also belong to the predicate type as "water"—"cold," etc. At one time a curious rhythm was observed, by which one word would be reacted to by "I" the next by "You." In general, the reaction type suggests strongly a limited order of intelligence. Here as in the free association the attention was variable, and had constantly to be recalled to the task in hand. Simple problems in mathematics were given, addition was done correctly, subtraction and multiplication with some hesitation, but he failed utterly to do a simple example in long division. He read in a monotonous voice, with no expression (he reads nothing practically at home), and wrote a very labored hand.

It was evident that with the limitations of his mental capacity, it was hardly wise to think of returning the boy to school, as the parents had suggested. Also, in view of the fact that unless a very careful regimen was kept up the epilepsy might return, led the examiners to consider that an out-door trade was the sort of thing to which the boy was best fitted. As he was somewhat interested in the work of florist, there seemed to be no reason why he should not keep on with it. But as one of his grievances seemed to be that he was earning no money and was not independent, it was recommended that a position be found for him with some one other than his father, but where he could be at home at night if possible, in order to see to the keeping up of the necessary regimen. Fortunately such a position was possible which fulfilled the necessary conditions. The boy was also taken by himself and talked to. He was given to understand the importance of taking care of himself, and the fact that if he became careless of physical conditions his malady might return. The effort was made to impress upon him that his habit of running away would be the worst possible thing for the independence which he desired. He was made to feel the importance of having a definite trade, and not merely drifting, and the advantages of such a trade as the one he had been following were pointed out to him. The mother was told of the importance of plenty of plain, wholesome food, plenty of sleep and the avoidance of excitement for the boy.

Case B.

Male, 12 years of age, fairly well developed physically, bad family history, mother white, father colored, and for years an alcoholic, eventually died of alcoholism and consumption; child's maternal grandmother became insane at climacteric and died in asylum, maternal grandfather was a heavy drinker in early days, mother's paternal grandfather was insane and a suicide, mother's maternal great aunt was insane and died in asylum, child's father died at about the time of his birth, child has one brother older, who is about the average in mentality, but he is in the Lyman School for larceny.

Gestation: all during the period of gestation the mother was worried by the alcoholic and sexual excesses of husband, and was frequently subject to his brutality two months before birth of this child the father returned home drunk and abused wife, he struck her in the face and finally after mistreating her unmercifully, he hurled her across the room where she struck her abdomen against a machine, there she lay helpless for some time. Mother worked as washer and ironer till three or four weeks before birth of this child; mother had an aversion to bringing a colored child into the world.

Labor was difficult and instruments were used, mother returned to work four weeks after birth of the child, she nursed him only at night, maternal grandmother fed him on milk during day.

Personal history: child weighed 11 pounds at birth, when two years of age he was struck on head with a broom handle, he became unconscious, vomited and raved for some time, he was sick two weeks at this time, mother believes that he was never the same after this accident, measles at three years of age, whooping cough at nine years, during this he was sick ten weeks and he coughed till he had hemorrhages, child was nearly two years when he began to crawl, he was between three and four when he began to talk and walk, he has night terrors and often screams out in sleep, enuresis till a few weeks ago.

The woman has had the following children by a second (colored) husband: girl 10 years, girl 8 years, boy 9 years, girl 7 years, boy 4 years, boy 2 years, all of these are living except the boy of four who was a "blue baby," he died about this age.

The boy was characterized as nervous. quick-tempered, forgetful, not too honest, but rather affectionate. He is easily led by older children, but belongs to no regular gang, and rather inclined to solitude. He performs simple duties about the home fairly well. He entered school at the age of eight, and after one year in the first grade, was sent to the special class, where he is in the lowest section. Here he is considered lazy and inattentive, with no particular aptitudes, but a liking for tools and music. The weight of the child was 33 kilos, height 137 cms, height sitting, 74 cms. The grip with the right hand, 15 kilos, with the left 20. The head diameters were 6.3 and 5.6 inches, the head girth 52 cms. Vision and hearing normal. Three tests in replacing the blocks in the form board gave the times, one minute eight seconds, thirty-nine seconds, and thirty-nine seconds respectively. Perception of color, form, size and distance good. Motor co-ordination is also good. With regard to the perception of weight, the child was unable to distinguish weights of six and twelve grams, only lifting one of the offered weights for the most part, and immediately pronouncing that the heaviest. He recognized the difference in length between lines of five and six cms. He copied a square and a diamond, but failed to put the two portions of an oblong together to complete the figure. Asked to describe a picture, he only enumerated details, without a trace of action. His memory was good only for four place numbers. In tapping in unison with the metronome he was fairly successful, keeping pace well with the different rates. His reaction times averaged 345 sigma, with a mean variation of 135, which is large. . . Attempts at association tests failed. Mentally the child is of the age of about six years, six years behind his real age. The case is clearly an institutional one, and recommendations were made accordingly.

Case C.

Female, age 12, well developed and of healthy appearance, good family history, prolonged gestation, labor nine hours duration, delivery by instruments, artificially fed, no children's diseases except whooping cough and mumps, at two years of age fell and hurt head (not severely), backward in walking and talking, complains of occasional headache. Ears, nose and throat (had adenoids removed some time ago) normal. One diopter of astigmatism found in each eye, and correction ordered.

Mother gave history of "not wanting a child at this time," etc., then told of an "accident" when two months pregnant, which seemed to indicate that an attempt at abortion had been made.

The child was characterized as nervous, quick-tempered, timid, affectionate, willing to try. She is fond of playing with dolls and of pictures. She entered school at the age of seven, and remained at publc school for two years, not being promoted beyond the first grade. Then she was kept at home for two years, after which she was sent at the recommendaton of a physician to a private institution. Here she remained for a year, since which time she has been at home, with no attempt to return her to school. In school she was well-behaved, but inclined to solitude, and seemed inattentive.

The girl's weight was 36.2 kilos, height 155.5 cms, height sitting 80.5 cms. The head diameters were 6.7 and 6 inches, the head girth 51.5 cms. There was a noticeable flattening of the head in the occipital region. The grip with the right hand gave 15 kilos, and the same with the left. The form board test was done in thirty-six seconds the first time, and then in nineteen. The control of the larger muscles, of the hands and vocal muscles was fair. A slight thickness in speech was noticeable. Perception of color, form, size and distance were correct. The æsthesiometer gave a limen for the ball of index finger of about three mms. The mental level, according to the Binet tests, was eight years. Memory for a list of ten unrelated words gave a total of seven correct, for a list of ten related words only four. Six place numbers could be reproduced. Reaction times averaged, for twenty-five trials, 285 sigma, with a mean variation of 85 sigma. Tapping in unison with the metronome was very difficult for the faster rates. In a test of the maximal rate of tapping, thirty-seven squares were dotted in thirty seconds, and two omitted. In marking out one hundred A's the time was six minutes, eleven and one-fifth seconds, and forty-eight of the hundred were not crossed. No letters were crossed incorrectly. In the association tests, the list of nouns associated with given adjectives was well done, the list of opposites and the whole-part list with more difficulty.

The child read matter of about second grade difficulty, but without fluency. She wrote a laborious hand, having great trouble in holding pencil or pen in correct position. In arithmetic she could count to one hundred, could add one place numbers to one hundred, but neither add nor substract numbers of more than one place. The multiplication tables presented great difficulty for her, but the table of threes, which was partially known, was learned while the child was under observation.

Division only of the smallest numbers could be done, and this for the most part with the aid of counters. The result of the work was to show that, although of course general defect was present, the case was one of a comparatively light degree of defect, and considerable improvement could be anticipated with proper training. As the parents desired to keep the child at home and employ the services of a teacher, recommendations were given as to the course to be followed.

These were, in summary, as follows. First, the giving to the child of some simple, regular duties about the house, for which she should be made to feel responsible. Next, for the training of the larger muscles, light gymnastic exercises were described, including, besides those of a more strictly gymnastic character, such things as skipping a rope, practice in throwing and catching a ball. Finger exercises were given to develop control here, and the learning to play the piano was suggested, as were drawing and painting.

On the mental side, the child's mental level in reading, writing and arithmetic was described for the parents, and the attempt made to give suggestions by which the work could be logically built up from this level. In arithmetic this of course began with the development of more surety in the addition of numbers up to one hundred, and the learning of the tables, and went on by simple steps through the fundamental operations.

For writing, it was suggested that copying ought at first to play a large part, but that the emphasis should soon shift to original work. It was suggested that a short composition might be written each day, perhaps to take the form of some description of an event of the day, so taking on the form of a diary. Regular practise in reading was also suggested, which should keep pace with the writing.

To these recommendations were added those of plenty of exercise in the open air, regularity of sleep and conditions.

It will be seen by all the foregoing in just how plastic and experimental stage the work of the department is, and will be for some time.

Now a word as to some of the things we aim to do.

In the first place, there ought to be a list of physicians coving the different specialities in the city to whom the patients could be referred, and who would send reports back to the clinic. The fact that the patients might have to pay for such service would, it hardly seems, be an objection in the majority of cases, and might also tend to make them feel the thoroughness of the work which was being undertaken. The results furnished us by physicians, each going into the thing from his own point of view, would then furnish the examiners with a broad basis for recommendations.

The question must also be soon faced as to whether the work in the clinic is to be designed primarily for people in this vicinity who bring children back and forth for observation, or whether the needs of people at a distance ought not to be considered more than now. Inquiries which have been made over and over again relate to the possibility of our establishing a school for defective children in connection with the work. The longer the work continues, the more desirable this seems. Such a school ought to be in charge of a teacher who has had considerable experience in work with defectives and of a matron who ought to be a nurse, with such assistants as numbers would warrant. There should be an arrangement by which the services of a physician would be available. Here children could be brought for a course of study, and at the same time intensive study of the cases could be made under the most favorable aspects. Such an institution ought to have some endowment, so that fees could be made of a size to appeal to people of moderate means, with the understanding that the cases were to be used for study. Such a school, with the opportunities which it would afford for research, would be almost unique in the country, and ought to render services of the greatest value.

In the immediate future, the question of proper tests will occupy a considerable share of the work. It is hoped to make the collection now on hand still more inclusive and valuable. A descriptive bibliography of the more important literature in the field is to be compiled. The question of speech defects must also be considered, as many of the children brought to us are so afflicted. Here a considerable number of books are available, and others have been ordered.

V. EXPERIMENTAL DIDACTICS IN THE CHILDREN'S INSTITUTE

By Amy E. Tanner, Ph. D.

The work in this subject was not begun until October, 1909, and has been unavoidably delayed, and interrupted somewhat, as it was necessary to complete and revise a study of Modern Spiritualism begun last year now in press with D. Appleton & Co.

Previous to the organization of the institute some work in experimental pedagogy had been done in Dr. Burnham's courses, and in some instances Dr. Hall's and Dr. Sanford's students had chosen thesis subjects for the Ph. D. in this field. This work is as follows:

W. F. Book, The Psychology of Skill, pp. 181.
C. E. Browne, Psychology of the Simple Arithmetical Processes, 1906, pp. 37.
David Gibbs, Pedagogy of Geography, 1907, pp. 100.
E. B. Huey, Psychology and Physiology of Reading, 1901, pp. 44.
D. E. Phillips, The Teaching Instinct, 1899, pp. 59.
E. J. Swift, Studies in the Psychology and Physiology of Learning, 1903, 53 pp.

Of work still unpublished, Dr. Louise Ellison's thesis is on the Psychology of the Learning Process, Mr. Meyerhardt's on Reading and Arithmetic, and Dr. Misawa has summarized all the experimental work in drawing in a series of articles of which the department has a copy. Dr. Ellison also has published an article on the Acquisition of Skill, *Ped. Sem.*, March, 1909; and Mr. H. W. Chase one on Some Aspects of the Attention Problem, *Ped. Sem.*, Sept., 1909.

On taking up the work two important problems were those of the scope and boundaries of the subject, and the establishment of a pedagogical laboratory.

The term experimental pedagogy has as yet no accurately defined meaning. On one side it merges imperceptibly into didactics, general methods, school administration, etc., and on the other into educational and experimental psychology, and child study. We may, however, follow Lay in giving it three stages: 1, forming the hypothesis; 2, carrying out the experiment; 3, evaluating results. General and special methods and educational psychology usually stop at the first stage; some individual teachers and schools, who really test methods in practice and modify their theories by the tests, attain the second stage, but usually do not compare their own individual work enough with that of others, and this is necessary before results can really be evaluated, and the work completed.

On the other side, experimental pedagogy is distinct from experimental psychology in that it seeks primarily to experiment under the ordinary conditions of daily life instead of under the highly artificial ones of the laboratory with complex apparatus. Experimental psychology, *e. g.*, may make memory tests with nonsense syllables, but the results are of less value to experimental pedagogy because the learning child in the schoolroom is not under at all the same conditions.

But experimental pedagogy in this sense would cover nearly all of the departments of the Institute. It would include hygiene, eugenics, linguistics, juvenile crime and vice, and work with subnormal and abnormal children besides religious and moral education. The term seems to be used in this very broad sense by the German writers, when they speak of "experimentelle Pädagogik," and the relation of these various subjects to the larger one that I have been discussing seems really to be one of subordination.

This, however, is too large a group to be included in one department especially if the Institute should grow as it is hoped that it will. It seems, therefore, desirable that the department should not take the title of experimental pedadogy, but of experimental didactics, and limit itself to a subdivision of the work outlined above, viz., to ascertaining the most favorable conditions for the normal mental development of school children. It would thus include on the one side the school curriculum in all its phases, and, on the other, the mental processes involved in studying the school subjects, including mental fatigue, memory types, psychology of the question, etc., etc. The emphasis upon normal development marks the boundary between experimental didactics and work with sub- and abnormal children; and the emphasis upon mental development, that between it and school hygiene, although there is some unavoidable overlapping here because some of the most important conditions for normal development in school are hygienic. Limiting it to the school and to mental development also marks it off fairly well from eugenics, and from religious and moral education and juvenile crime and vice, although there is some overlapping here too. There is also overlapping with linguistics when we consider the school teaching of language and literature, but otherwise the two are distinct.

EQUIPMENT OF A LABORATORY

Accepting these boundary lines, the next important problem was the fitting up of a pedagogical laboratory, and of its relations to the laboratories already in existence in the University and College. Practically all of the tests upon school children are made with apparatus originally invented for anthropological and psychological tests, and since the University laboratories for psychology and school hygiene were well equipped for these, it was desirable to avoid unnecessary duplication. It was also realized that in a subject as new as experimental didactics, the investigator of any special subject would be somewhat under the necessity of inventing his apparatus or modifying that already in existence, and therefore, that it would be better to delay extensive purchases until they were desired for individual problems.

Through the courtesy and aid of Drs. Sanford, Burnham and Porter, and upon the basis chiefly of Schulze's Instrumentarium, the following apparatus was bought: Jacquet's graphic chronometer, stop watch, Marey's tambour, Dubois's ergograph, tachistoscope, set of ten graduated tuning forks, Seashore's suggestion blocks, Nagel's charts for color discrimination, set of puzzle pictures, and various small items such as rubber, kymograph paper, telegraph key, etc., etc., the total sum expended being approximately $125.00.

If more exact recording instruments should be needed, those in the psychological laboratories will be available through the kindness of Drs. Baird and Porter, and also, in the case of special individual researches, such instruments as the spirometer, anthropometeric apparatus, sphygmograph, pneumograph, plethysmograph, esthesiometers and algometers, kinesimeter, color wheel and other visual apparatus, etc.

By this arrangement it will be possible for the pedagogical laboratory to give even the most exact tests and to have the use of their very complete equipment. The pedagogical laboratory is, therefore, in a position to undertake any experimental problem which it may consider desirable, without being hampered by lack of apparatus.

WORK OF THE DEPARTMENT DURING THE YEAR

In addition to the material already referred to, the Department was fortunate enough to fall heir to some of the results of former President E. H. Russsll's work at the Worcester Normal School. This consists of between 50,000 and 60,000 observations on children, which were made under Mr. Russell's direction by Normal School students during a period of 25 years. The method was as follows: Mr. Russell furnished slips of paper to the students with space at the top for the observer's name and address, sex, age and nationality of the child, and the length of time between making the observation and writing it down. White slips indicated that the observation was made by the reporter; yellow, that it was a reminiscense; pink, that it was hearsay, and green that it was copied from some book. The students were told simply to write down what they saw as soon as possible, with as little inference and generalization as possible, and Mr. Russell's hope was that thus an objective account could be secured of children's sayings and doings which might in course of time have real scientific value. Previous to this he had tried to obtain material by questioning the children but had become convinced that this method seriously distorted the real facts, and so he adopted the method of the "still hunt," hoping thus to get pictures of children behaving naturally in their natural habitat. The data thus obtained are simply raw materials for pschologists to work over and interpret.

This task was assigned to the Department. A few of these

50,000 odd observations had already been used in Miss Haskell's article on Imitation, and a small beginning had been made of classifying others, but most of the many bundles were entirely miscellaneous and so must, first of all, be at least roughly classified, so that students interested in any special line of activity and thought would find the observations on that subject put together.

The Department was fortunate enough to have three assistants for the task, Dr. Louise Ellison, Mr. Sakyo Kanda and Mr. Yasuma Nakamura. Each of us spent a part of each day for ten weeks, the sum total of each day's work amounting to ten or eleven hours, before the vast mass of papers was finally packed away in the cases. In doing the work there were various purely mechanical difficulties which ought to be mentioned perhaps as showing some of the troubles. In the first place, while most of the writing on the slips was unusually good, the mere fact of its being script and on colored paper caused eye strain, and before we had finished some of us were suffering from headaches as a result of the eye strain and all of us had become quite conscious of our eyes.

Another mechanical difficulty was that of sorting. We had three long tables for the slips and we were obliged to stand most of the time because we could not reach while sitting. The combined fatigue of eye strain and standing for two or three hours a day was considerable.

By the end of the first week we had about 60 heads, and after that relatively few slips were found which did not readily fall under one of these heads. Many of these rubrics could be easily subsumed under larger heads, and in the final summing up of the results we obtained the following classification:

1. Imitation, 3,000 observations. 2. Play, including here toys, and manipulation of objects, 4,000. 3. Constructive and inventive tendencies, 500. 4. Bodily control, motor habits, etc., 1,400. 5. Sense of bodily self, 800. 6. Clothes and ornaments, 1,200. 7. Sense activities, 500. 8. Interest in noise, music, and rhythm, 1,000. 9. Emotions related to sense of self, self aggrandizement, rivalry, jealousy, showing off, pride, teasing, bragging, etc., 2,400. 10. Fear, 1,600. 11. Anger, 900. 12. Forms of the social instinct, likes and dislikes, sympathy, gratitude, generosity and selfishness, etc., 1,900. 13. Spontaneous drawings, 1,000. 14. Spontaneous compositions, poetry, letters, and reproduced stories, 800. 15. Various forms of the moral sense, 600. 16. Discipline and treatment by adults, 700. 17. Ideas about school and teacher, 700. 18. Interest in literature, learning to read and write, spelling and pictures, 800. 19. Humor and jokes, 700. 20. Nature and natural phenomena, 2,200. 21. Religious subjects, 600. 22. Superstitions, 800. 23. Language, 3,000, with more or less complete vocabularies of 51 children. 24. Intellectual processes, memories, associations, wishes, perception and observation, attention, 3,300. 25. Concepts and reasoning, 7,000.

There are also various smaller groups which probably have little or no value in themselves, but which might be useful as preliminary to a further investigation or corroborative of one, such as, peculiarities and abnormalities, moral ideas, money sense, barter and bargaining, fancies, imaginations, ideas about death and funerals, ideas about Santa Claus, animisms and anthropomorphisms. There are also 66 series of observations on children, running from September to June. These differ greatly in completeness and probably are valuable chiefly for isolated observations which they may contain.

These data are now at the disposal of any student who may wish to use them. Mr. Nakamura is already using the collection on sex differences, Mr. Hanley the one on the social sense, Mr. Magni the one on language and I the one on conception and reasoning, in which I have also included children's lies, schemes and excuses, as giving the best cases of the daily exercise of these faculties.

This collection on conception and reasoning numbers some 8,000 observations, practically none of them on children in school, and nearly all of them on children below fourteen, who are Americans of at least one generation, from the middle class. Judging from the names, the earlier ancestry was either American, Irish or Scandinavian, with relatively few French and practically no representation from south or southeastern Europe. This material seems to represent a homogenous group and the numbers are probably large enough to warrant general conclusions for that group.

Here again the mechanical difficulties of reading and sorting have been considerable. It was first necessary to re-sort the slips, into such classes as definitions, time and place associations, inferences based on likeness in color, form, movement, use, etc.; inferences from names. Then there were the concepts of such things as the earth and natural objects, of the structure and mechanism of objects, of growth, life, relationship, etc., etc. This classification involved re-reading all the slips, and after it had been made, each sub-division had to be arranged by age and sex. This part of the work is now completed and also the written summary of about 1,000 of the slips. The rest of the work will be comparatively easy, and the article of 75 or 80 printed pages will be completed for the *Pedagogical Seminary* by September.

The major work of the Department, however, has naturally focussed about the preparation of the six Conferences which are to be given this spring, and of which the outline is as follows:

CONFERENCES ON METHODS IN EXPERIMENTAL DIDACTICS

1. The field of experimental didactics; its relation to child study, educational psychology, practise and methods of teaching. Brief account of its status in the United States and

Europe, with reports on pedagogical museums and laboratories.

2. Observation method, what it is, most important studies on individual children, Mr. Russell's data. Questionnaire method—reading of typical questionnaires, and having the students answer parts of them, at the same time writing below each answer their difficulties in giving it and their criticisms of the question.

3. Using these answers, as well as the literature on the subject, an evaluation of the questionnaire method and summary of its results, citing the most important and the poorest pieces of work.

4. Two experiments, to test the accuracy of narratives, so arranged as to be comparable with Stern's, one involving testimony on a series of events, and the other a description of a place, each followed by cross-examination.

5. Account of Stern's "Aussage" experiments, comparison of our results with his, and critique and evaluation of the method in pedagogy.

6. Psycho-analytic method: description of the tests on normal people with classes. How to make out a list and interpret the results; obtaining time reactions, and normal variations in time reactions. Limitations and value of the method.

This course is necessarily very incomplete. The following subjects may be added: statistical methods, with practise in working up data and using the formulæ; tests of general intelligence; common laboratory tests for children, with summary of the important results and practise for the students in fitting up and using the apparatus; summaries of experimental work in reading, writing, spelling, number and drawing. In all these topics the course may be indefinitely expanded from year to year, some of them becoming topics for an entire course, with research work as their most important part.

PLANS AND IDEALS

If experimental didactics has for its end to ascertain the best conditions for the normal development of school children, then its investigations take two main directions: 1, the discovery of what normal development is; 2, the school conditions most favorable to it. The first, besides the hygienic factors, includes such things as the influence of race, age, sex, mental types, degrees of talent, and the psychology of the learning process with each school subject. The second naturally correlates with the first, including especially the interactions between teacher and pupils, and pupil and pupil, methods of presentation, uses of pictures, charts, toys, tools, etc., etc. On both sides it is evident that experimental didactics may make a good beginning by the use of the questionnaire and other methods, but that the theories based upon such returns must be merely tentative until they are tested in the schoolroom, and on children of various ages and races. The ideal of the department naturally follows from this, as follows:

1. An experimental school, containing a small number of children (perhaps fifteen of each age) from the kindergarten age up. Each child should be studied individually, and a record kept of his reactions to the methods of teaching employed in each subject, together with a personal history which should include not only a sketch of his inheritance and home conditions, but anthropometric and psychological tests taken at regular intervals. The fuller these records could be, the better, so that there would be a fairly complete sketch of any child who remained in the school from beginning to end. If also before entering the school records could be made by the parents the results would be still better.

With these small numbers of children, various methods of teaching, plans for government and moral training, books, devices, etc., etc., could be tried and their effects recorded, with the teachers' critiques.

It is the hope of the Department to have a small group of little children who have just begun to ask questions, in order to study the psychology of the question and answer. Common as questions and answers are both in home and school life, and numerous as are the platitudes about them, careful experimenting and even careful observation seems almost completely lacking. There are semi-legal discussions of cross-examination, and Stern's studies on the accuracy of testimony, a little work by Binet on suggestibility in questions, and some observations on the age when children begin to ask questions, and the sort, but as yet the work is very fragmentary. If stenographic records could be taken of groups of children on different ages, under carefully arranged conditions, we should have a record of the natural development of questions and answers that would throw much light upon methods.

2. But of course such work cannot be final, both because the numbers of children would be small and because they would probably be a highly selected group. The next need, therefore, is co-operation with model and public schools all over the country. The Department ought to be in close touch not only with similar departments in other Universities, but still more with Normal Schools, and public school superintendents, and grade teachers, so that when a certain method has been tried in the experimental school and approved, the Department can suggest to superintendents and teachers a similar trial under their conditions, and can to some extent

guide the trial. This would of course be a wholly voluntary thing on both sides, and will need to be developed gradually. Both sides would profit largely by it. The schools could suggest pressing problems and keep the Department close to actual conditions; the Department could in some cases show why certain methods must fail and suggest better ones. It would close the present gap between abstract child study and the public schools as nothing else would. Even so early as this desire to co-operate in research has been shown by some, and it is certain that some teachers would co-operate in testing methods as far as their superintendents would allow.

3. Finally, when any method has survived the tests both of the experimental school and of the co-operating schools, it should be printed in a leaflet form which would be accessible to any teacher for a small sum. These leaflets or pamphlets should summarize the investigation and its results so simply, succinctly and accurately that teachers without any professional training can understand them. Only thus can the Department reach its highest effectiveness.

In this connection, the Department may begin next fall to summarize the important current publications and to print them in leaflets, which any one can obtain by writing to the Department. In this way the practical results of much of the work both in this country and abroad will become accessible to every one.

The Department may also print in a similar manner summaries of the most important work already done, such as are given in the following bibliography:

1. MEUMANN, ERNST. Vorlesungen zur Einführung in die experimentelle Pädagogik, 1907. Bd. 2, pp. 1000. (A summary of all the important previous work.)
2. LAY, W. A. Experimentelle Didaktik, 1903, pp. 595.
3. —— —— Experimentelle Pädagogik, 1908, pp. 125.
4. SCHULZE, RUDOLF. Aus der Werkstatt der experimentelle Psychologie und Pädagogik, 1909, pp. 292. (A summary of methods and description of apparatus, copiously illustrated.)

4a. WHIPPLE, G. M. Manual of Mental and Physical Tests, Baltimore, 1910, pp. 400.

5. CLAPARÈDE, E. Psychologie de l'enfant et Pédagogie experimentelle, 1909, pp. 282.
6. THORNDIKE, E. L. Principles of Teaching, 1906, pp. 293.
7. CORNMAN, O. P. Spelling in the Elementary School, 1902, pp. 98.
8. BURNHAM, W. H. Hygiene and Psychology of Spelling, Ped. Sem., Vol. 13, 1906, pp. 471-503.
9. EBBINGHAUS, H. Ueber das Gedächtniss, 1885, pp. 169.
10. MÜLLER and SCHUMAN'S, and NETSCHAJEFF'S articles on Memory in the Zeitschrift für Psychologie und Physiologie der Sinnesorgane, 1894, and 1900.
11. OFFNER, M. Das Gedächtnis, 1909, pp. 238.

12. MÜLLER and PILZECKER. Experimentelle Beiträge zur Lehr vom Gedächtniss, 1900, pp. 300.
13. HUEY, E. B. Psychology and Pedagogy of Reading, 1908, pp. 443.
14. W. STERN and others, on defects in testimony, as given in the various volumes of his Zeitschrift, Beiträge zur Psychologie der Aussage. Leipsic, 1903-6.
15. JUNG and RIKLIN's Diagnostische Assoziationsstudien, running through the Journal für Psychologie und Neurologie from 1904 on.
16. The *Pedagogical Seminary* has also at various times published articles of much practical importance to all who deal with children, such as Dr. G. Stanley Hall's article on Children's Lies, *Ped. Sem.*, Vol. 1, 1891, and M. H. Small's on the Suggestibility of Children, *Ped. Sem.*, 1896, pp. 176-220.

In all these cases, and in many others, the results of the work are of practical importance to teachers, and yet are not very accessible, so that the Department believes a real service can be done by supplying full summaries.

VI. DEPARTMENT OF CHILD LINGUISTICS

By John A. Magni, Ph. D.

Child linguistics is a special branch of child psychology. Historically as well as in subject-matter the two are most closely related. As a new science it must avail itself of all data well established by other kindred sciences, such as philology, physiology of speech, biology and psychology, including speech defects. Being still in its infancy, child linguistics must not attempt too much; caution is necessary. As regards its purely theoretical function, the time has not yet come for bold attempts, sweeping generalizations like those rather premature ones by Romanes and Baldwin. To make it a science that will yield an heritage of pedagogical truth for future generations, careful, painstaking research must be done from the start. Reliable methods must be elaborated. Furthermore, while utilizing much valuable material already gathered, a vast body of authentic facts have still to be collected, sifted, compared and tested before any definitive deductions are made for pedagogical use. The necessity of such a procedure is readily recognized, not merely because child linguistics is a young science, but is an independent branch in genetic psychology.

The real significance of child linguistics is to be found in the possibility that it may establish unique (and independent) phenomena of psycho-genesis. In the earliest manifestations of the psychic powers, the very first faint glimmerings of a meaning, as discernible in the first inarticulate sounds and babblings of the child, we must seek the birth of that most enigmatic phenomenon—human thought! Here it appears that we are nearest the union of, or the indifference point between, the psychic and the purely physiological. Our new science may, in so far as it applies itself to the study of genetic origins, some day be able to show that the origin of language is altogether physiological, mechanical and unconscious, in other words, that the appearance of language is due to universal cosmic laws, and that in human speech we have a self-revelation of the universe objectively predetermined and as necessary as the sound-vibrations of a bell when struck, and not an arbitrary interpretation, a distorted image subjectively determined. Equipped with a more accurate knowledge of the nervous system and of the nervous force, and aided by more refined and perfect methods, as well as a keener faculty of observation the future child linguist may be able to decide whether the hypotheses formulated by F. Schulz, Steinthal and others, that only what is experienced as vibrations of the nervous system can be expressed in language or in Steinthalic words that "man speaks as the grove soughs" in the wind, is correct or not. If so, child linguistics may, although chiefly and essentially a practical discipline, contribute something towards the satisfaction of man's instinctive intellectual cravings.

CONFERENCES

In order to enlist the interest of educators and friends of education generally, a series of conferences have been begun at which various topics are discussed, and suggestions as to methods of work and sources of information on the subject collected. First there will be an historical review of the work already done in this field. Methods of observation and study will be expounded and the relative merits and value of these methods explained. The field is a comparatively large and very interesting one. Hence it will be necessary to devote several meetings to it.

After an historical introduction, topics like the following will be considered: The Development of The Inner Speech Form; The Origin of Percept and Concept; The Evolution of Parts of Speech; Development of the Apprehension of Words; Original Words of Children; Vocabularies; The Importance of a Large and Well Chosen Vocabulary; How to acquire such a Vocabulary; Development of the Sentence; Relation Between the Development of Speech in the Child and the Race; Pedagogy of Teaching Language in the Kindergarten and in the School, etc. A few of these will be given this year. In the department, if not in the conferences of this year, is included also the specific pedagogy of the English language in the home, the kindergarten and the grades, a survey of the conclusions from the studies of aphasia, stammering, stuttering and other speech defects, and the institutions and methods of their treatment, gesture, mimesis, etc.

BIBLIOGRAPHY

Although child linguistics is only a few decades old, there is already a goodly number of books, pamphlets, monographs and articles on the subject. An exhaustive bibliography of these is now being made. On child linguistics proper, it will contain all that has been written by such pioneers and representative authors and students of child psychology as Tiedemann, Löbisch, Sigismund, Preyer, Egger, Pérez, Ament, Lindner, Oltuszewski, Stern, Meumann, Scupin, Gheorgov, Sully, Taine, Darwin, Gale, Tracy, Hall, Chamberlain, *et al.* Besides these there will be an extensive and well selected collection of books on speech disturbances and defects, *e. g.*, stammering, stuttering, aphasia, paraphasia, word-blindness, etc., by authors like Gutzmann, Kussmaul, Colombat, Chervin, Séglas, *et al.* This subject, so important from a pedagogical point of view, is now receiving a great deal of attention. It is naturally a branch of child linguistics and in collaboration with the section for abnormal psychology and defectives we hope to obtain both practical and theoretical results. Finally, since the biogenetic aspect of soul life has come to the fore in psychology, the relation of infantile speech to that of the race, or a comparative study of the two is most inviting. Hence a collection of literature on comparative philology, on primitive languages, especially of American aborigines, and on the psychology of language generally, is of supreme importance.

An exhaustive study of children's vocabularies, nature and range of ideas of this age is one of the foremost *desiderata* of modern scientific pedagogy.

Our Aim

Despite centuries of pedagogical endeavor to improve language teaching, the limit of efficiency is far from being reached. The boy or girl entering high school or college is everywhere hampered and his or her progress in the acquisition of knowledge is greatly impeded, simply because of a too limited vocabulary and a too imperfect command of the mother-tongue. Not only is language, what Wilhelm von Humboldt said a hundred years ago, the formative organ of thought, but also the bearer and transmitter from age to age of the precious treasures of human experience and achievements. It is the real *sine qua non* of an age-long and painfully acquired culture. The person in whom this organ is most highly developed is certainly the one who is most sensitively attuned to the invisible realities of the spirit, and the true heir of all the ages. Words full *of* and throbbing *with* the concrete, sensuous life of our race have become desiccated, lifeless, pale abstractions. Consequently we feel too superficially the spirit and power of the words we use. To raise this submerged world of humanity, to make it live, breath and laugh again in the living word should, therefore, be our aim. But to achieve this Herculean task we must begin early.

As the soul gradually unfolds, word is added to word and new relations are consciously assumed, an inventory of the child's *Sprachschatz* should be made from time to time toascertain the proportion or mutual relations of the different parts of speech used, or the presence or absence of any grammatical categories. In this way parents and teachers would learn to know the natural bent and the most impressionable phases of the young soul and could, therefore, with tact and skill, aid nature where it may be lax or deficient, and this, too, at so early a period of life, that psychic symmetry might be attained from the start. For it is quite possible that modern as well as ancient educators are wrong in their assumption that nature sends every human being mentally lopsided into the world.

To institute annual vocabulary tests from about the second year of life and continued through kindergarten, primary and high school seems to me a great *desideratum*. To promote a new linguistic pedagogy based on established facts in child psychology, to arouse a deep sense of the imperative need of a better, a scientific method of language instruction in early infancy and all through the different grades of school, to implant from the first a genuine love for the very best form of the mother-tongue, and create an abiding interest in the hidden phyletic contents of words, phrases, idioms and structure of speech,—these should be some of the practical results aimed at by child linguistics.

The mere enumeration of some lines of research closely related to our own and directly contributing to the more efficient language instruction, will enable us to form a fairly adequate idea of its magnitude. Thus we find, for instance, that the pathology of speech is an immense science in itself. The various speech defects are therein discussed, their causes and remedies set forth. Now, if language teachers are to meet the needs of all children entrusted to them they should know the valuable scientific information regarding such speech defects as stuttering characterized by spasms in one or all of the three groups of speech-muscles, stammering or defective pronunciation of certain letters, abulia, aphthongia, blustering, hysterical stuttering, periodic stuttering, aphasia, paraphasia, word-blindness, etc. Practically all speech defects have been more or less studied, but much remains to be done. To disseminate such valuable information, as we possess, among teachers and parents is therefore of imperative importance that these defects may be corrected as early as possible. Closely connected with these are errors and lapses of speech asthey occur in everyday conversation. An investigation of this subject is now being made by Mr. DeBusk, of Clark University. A very interesting and suggestive study of these phenomena has also been made by Prof. S. Freud, of Vienna, in his "Zur Psychopathologie des Alltagslebens," 1907. In the same connection E. B. Leroy's "Le Langage, Essai sur la Psychologie Normale et Pathologique de cette Fonction," 1905, deserves mention. The importance of the pathology of speech for child linguistics goes without saying. The ramifications of our subject are almost bewildering, for they are legion. A great deal might be said regarding children's interest in words as mere words, whether it is the sound, the form or the idea associated with the word that creates this peculiar interest, and what is its pedagogical value. Furthermore, in our day of pedagogical innovations and reforms, who doubts that the pedagogy of modern and ancient languages deserves a most serious consideration? Then again, the pedagogy of reading, oral and visual, spelling and writing is a subject of paramount practical value. The following topics are of a more theoretical nature: evolution of the parts of speech, of the inner speech form of percept and concept, figures of speech, development of the sentence, of the ego as revealed in the language of the child and the race, origin of slang and its relation to standard speech, etc.

These are only a few of the lines of investigation open to the child linguist but they will suggest the real magnitude of the work still remaining to be done, and the need of workers in this field. If this section of the department of applied child and adolescent psychology at Clark University succeeds in being an incentive to similar efforts elsewhere, its existence will be abundantly justified, for to attain the high aim set requires an army of trained psychologists.

Experimental Work

Following the example of such men as Preyer, Lindner, Oltuszewski, Ament, Stern, Gheorgov, Shinn, Gale and others, scientific observations of children in early infancy with careful records from day to day of all new speech phenomena will be made. A great deal of material is still needed in order to throw more and clearer light on the most interesting and important of all psychological questions, viz.: the psycho-genesis of the child, a problem whose solution and elucidation is all the more urgent because of its direct pedagogical significance. Further experimental work in child linguistics is also demanded owing to its direct bearing on speech evolution in general. For it is now being recognized more and more that we must look for traces and evidence of the origin and gradual growth of human language, not chiefly, as heretofore, in the most highly developed languages but in the radicals and structure of the most primitive tongues, and in the early utterances of children of different nations and linguistic stocks. Furthermore, a great deal of experimental research must be made with children of the kindergarten age. No continued and serious study of how ideas grow and word-meanings are acquired, has been made during this exceedingly plastic, concrete and formative period of psychic development. Nor have any systematic efforts been made to inventory the child's mind for the purpose of removing vagueness and error in the child's conceptions, much less to ascertain the frequent uniqueness of emotional tone, colors and sense imaginary characterizing the childish words. Here is a fruitful field for experimental work; and whatever helps to make language instruction during this period more perfect and efficient is a decided pedagogical gain.

Other Departments

Arrangements have already been made for courses in other subjects during the year 1910-11, and the following instructors have been appointed: Mr. Edmund S. Conklin, Religious and Moral Education; Mr. B. W. DeBusk, Eugenics; Mr. Rudolph Acher, Psychology, Pedagogy, and Hygiene of Sex.

B. SPECIAL CHILD SURVEYS IN WORCESTER BY CLARK STUDENTS

In *past years* the following students have devoted the whole or a part of their time to the study of local conditions in Worcester:

Mr. A. H. N. Baron, who wrote his Master's thesis on "Juvenile Delinquency in Worcester, Mass."

Mr. B. W. Lanphear, who made a study in College Economics on "The Italian Population of Worcester," under Professor Hankins.

Mr. Griggs and Mr. Dominis, who prepared a paper on "The Economical, Industrial, Religious, Social, Educational, and Political Aspects of the Negroes in the City of Worcester."

Mr. Frederick N. Cooke, Jr., who made "A Study of the Causes of Poverty in Worcester, Mass.," a Master's thesis.

Miss Elnora Curtis has made a study of local theatres.

During the *present year* the following students have investigated the following topics:

Mr. Roche has studied the history of the park system of the city from its inception, and on this basis has set forth the opportunities for play that are now afforded here, with recommendations for the future,—a work that has been made with the co-operation of the Park Commissioners and the new Playground Association described elsewhere.

Dr. Louise Ellison has made a careful investigation of the problems of motherhood here, interviewing the district nurses and midwives, in all tracing the story of one hundred typical births, setting forth the conditions of the poor and outlining reforms needed here in this respect.

Miss Cochran has investigated the problem of clean milk, with the co-operation of the Health Department, and has set forth the story and the difficulties of present methods that prevail here, with suggestions for betterment.

Mr. Acher has interviewed many physicians and others and has visited the local hospitals to investigate the problem of the extent and the sources of infection of venereal diseases in the city.

Mr. Carrigan has worked in the field of juvenile crime, for which he had the previous advantage of some years of experience as a criminal lawyer here. He has investigated the boy gangs and undertaken a careful census of the condition of boys in the reformatory institutions of the city and county.

Mr. Karlson has undertaken a study of the conditions of life for children among the Swedish population of the city.

Dr. D. F. O'Connor, who has had the advantage of years of medical practice here, is investigating various aspects of public and social hygiene in the city.

Mr. Stoutemyer and Mr. Sackett have made a searching investigation of the methods and the extent of the work of the Salvation Army, with special reference to their provisions for childhood.

Miss M. B. Downey has mapped and studied schoolyards with various suggestions and comparisons with the movement for their reform in other cities.

Mr. Cooley has begun a study of the activities of Protestant churches for children, particularly for those outside their own congregations, with reference to various extension lines of activity and with suggestions as to certain institutional church features that might be undertaken.

Dr. Baff has begun the study of illegitimacy and the social evil.

Miss Curtis has begun the study of the chief holidays and also evenings, Saturday afternoons and rainy days and Sundays, with a view to suggestions as to improvement.

Mr. Cashen has studied the activities of Catholic churches along child welfare lines.

Miss Crum has studied certain traits of the vicious, adolescent girl.

Other studies contemplated but not yet begun are those of the child welfare institutions in the city generally: their history, organization, methods, co-operation, etc.; reading for the young in Worcester, including story telling, private loan, school, and branch libraries, etc.; clubs for boys and girls in the city; studies of those of foreign birth in Worcester, including the Canadian-French, the Germans, Armenians, etc., with reference to their old-country beliefs, customs, handicrafts, fecundity, psychological peculiarities, amusements, etc., with an intensive study of some section of foreign population; the activities of the nearly one hundred and fifty fraternal associations in Worcester, in so far as they make special provision for orphans and for poor children.

In each of the above topics, careful and rather elaborate syllabi were first made out, based largely upon the study of the literature of the subject and of similar surveys elsewhere. These were discussed and compared, correlated, revised and commented upon by the heads of the several institutions, by physicians, jurists and others, were finally revised by Mr. Paul Kellogg, head of the Pittsburg survey, and later by his assistant, Miss Florence Lattimore, who made two visits of a week each here, spending her time in personal interviews, giving directions and suggestions to each worker in turn, often going out with them, and giving all the benefit of her experience and counsel, to which all are much indebted, as well as to the Sage foundation under whom they were working and to Dr. Hastings Hart. The above work by no means includes all that can and ought to be done in this field. Many of the syllabi have been considerably changed, extended in scope in some, and contracted in other, directions to make them more practical and more efficient.

Some of these studies will not be finished this year but may be taken up where they leave off by other students next year, and I hope will be rounded out with more or less completion. It need not be said that there are many other topics open to and indeed greatly needing investigation, which it is hoped may be undertaken in the fall. It is believed that by this work more co-operation can be brought about among local welfare organizations, duplication avoided, and perhaps gaps filled, and a comparative view won by which each can profit by the experience and devices of the others.

Many of the local workers have profited by the cordial assistance of Father J. J. McCoy of St. Ann's Parish and chairman of the Executive Committee of the local organization for child welfare, Father Bernard S. Conaty of the Sacred Heart Parish, and Thomas E. Murphy, President of the Holy Cross College, of which all the Catholic young men engaged here upon these studies are graduates. Without this advice and co-operation they would have accomplished little. In this sense and to this degree, the surveys they have made are joint products due to correlation of efforts on the part of Holy Cross College and its friends, and Clark University. It is significant that this first attempt in this city to correlate the endeavors of Catholics and Protestants is in behalf of the social and material welfare of children and youth. If the harmony which has thus far prevailed continues, it is believed that great good to the city will result, not only for the children but in the way of better mutual understanding and appreciation by Catholics and Protestants of each other's methods, aims, and institutions, and the amelioration of ancient misunderstandings.

All the special investigators have been instructed in making their reports to note details, names, places, and to adhere accurately to facts observed or stated on creditable testimony. They are expected to record without partiality, fear, or favor, regardless of what persons or institutions are affected, in order that their data may have scientific reliability and, so far as possible, be all that proofs of evidence demand if ever legal problems were brought before courts. When this is done investigators may add in separate paragraphs their own personal impressions, inferences, interpretations, etc., *ad libitum*, but in such a way as will render clear at every point the distinction between fact and opinion. All these records are to be filed and kept under lock and key in the archives of the institution or society under whose auspices the investigations are made. After discussing the many very delicate facts that have already appeared and the contingencies liable to arise, it has been concluded that while no pledges must be given by any investigator, and he must not accept information given him personally on condition that it be excluded from the records, and that everything pertinent to the subject, however obtained, should go down, it is expected and understood that nothing detrimental to any institution or official will be made public without at least first consulting those most closely concerned. If afterwards, portions of the data thus collected be utilized as theses or be printed or published, the academic standards by which this work is rated shall be safeguarded by obtaining the impartial judgments of the best experts in the fields of social service available, in order to avoid all suspicion of attempts to either commend or criticise from personal or prejudiced points of view. It is assumed that all institutions or persons devoted to child welfare earnestly desire to do the best they know and, therefore, are not to be antagonized, still less exploited in any sensational way. The distinction between data gathered and filed in archives and that made accessible to the public should always be maintained in the sense above indicated, and so far as possible nothing should be spread abroad liable to mar the harmony between the various agencies that are now co-operating, and everything tending to arouse partisan, religious, sectional, class, or race prejudice should be carefully avoided.

The method and spirit of all this work is, and it is hoped it will remain, sympathetic and not critical, helpful and not harmful. The policy intended is, if shortcomings are found or obvious improvements might be made, to suggest them privately to those interested and to avoid going before the public and, above all, to eschew newspaper exploitation. It is hoped that in this way where evils are found, as they always are in cities, that remedial agencies may be set into effective operation without besmirching the fair name of the city and without exposing any friend and helper of childhood, to censure or reproach. Already, as was indeed inevitable, many things have been unearthed which might be improved. But it is hoped that the spirit that has so far animated this work may be continued, viz.: that evils may be hidden from the view of all save those most interested in and anxious to reform them, and that the archives in which these investigations are kept may be held strictly private and confidential, and that therefore they may safely be made thoroughgoing, exhaustive, personal and detailed. This attitude has so far commended itself to all concerned and has secured a degree of co-operation on all hands that was greater than expected and which, it is believed, is unprecedented. If churches, institutions and organizations can be made to feel that all their secrets are safe in our keeping and that, though entrusted to us, they still belong essentially to them, it is believed that the work, though it be silent and unknown, will be more efficient in bringing about the needed reforms. If all concerned can be made to feel that there is no fame but only an opportunity for service here, that there is to be no mud-slinging and also no white-washing, but that the plain, unvarnished facts are to be set down with impartiality, then only can we succeed in giving this work the scientific character that is desired. It may be added that this spirit has met with very hearty and even unexpected approbation on all sides and that it has contributed not a little to bring into line those who began fearful lest the city was to enter upon an era of exploitation and exposure, such as some surveys have thought it necessary to undertake. It is in this spirit that we have secured in this city what is believed to be rather unprecedented in others and was certainly never attained here, viz.: the hearty co-operation of all classes and conditions—Catholics, Protestants, Republicans, Democrats, and all parties and sects and nationalities, and that we have made progress in establishing confidence and removing the fear, which at first handicapped our progress, lest local partisan or religious differences were to be compared and sensibilities needlessly wounded. It is surely safe to assume that all workers for childhood earnestly desire to advance their wellbeing or they would not enter upon philanthropic endeavor. This being true, it is also safe to assume that when any worker sees a better way it will be sure to be followed. As one of the eminent Catholic leaders in the movement well said: "We are trying to get not Catholic or Protestant, Democratic or Republican milk, but clean milk, good juvenile courts, clubs, homes, etc." This is the spirit that animates our work, and it is with gratification, not to say surprise, that we look upon the favorable auspices under which the rather tentative beginnings of the first year have grown.

In carrying out these investigations, the most important factor is the energy and initiative of the individual worker. A few have dawdled and tarried with the work, magnified difficulties, returned several times a week for more explicit directions, have found or made little time for it and two have dropped out by the way. Others with no experience have gone ahead, exhausted every resource, and consulted officials so frequently that we had to systematize and schedule such interviews, and presented reports so valuable that officials have wished copies to file and use, so that we hope we have really assisted city departments, to say nothing of institutions. Our experience suggests that, while experts can help in initial stages, their power to aid is soon transcended in the best cases. Most of them are specialists and can assist only to a certain point. Thus this work appeals to and tests native ability to devise new methods of meeting new emergencies as they arise, ingenuity to invent methods and adapt means to ends at every point. On the other hand, some have shown no tact but have aroused needless antagonisms and suspicions that were hard to allay, and which in some cases for a time seemed to block the work in specific fields or directions. Occasionally information has been withheld; but this fact had to be recorded. In general, most interested parties, heads of institutions and others, several hundred in all, have been remarkably helpful. On the whole it seems from our brief experience that success here demands a somewhat unique type of innate ability, sagacity and power of adaptation, which training can of course aid but is far from being able to create. The social worker in the field of childhood needs much born sympathy with childhood and intuitive power. This native difference seems to be greater than that between the sexes. In the various conferences of the workers that have been held from time to time, to define their several fields, to avoid duplication, and for mutual aid and encouragement, it has been noticed that the young women seemed rather more animated by the desire to help children, are more inclined to stress individual cases, and generally have more tact; while young men are more guided by the ideal of having a good thesis, and are rather more inclined to be careless of personal feelings. This difference, if it exists, however, appears to be slight; while young women often seem as ready as men to push their personal inquiries into unusual, if not in a few cases somewhat dangerous, quarters. The field work has taken both much out of doors and involved a wholesome change from academic study as well as given healthful exercise. Best of all, perhaps, as nearly all were psychologists, it has given a most wholesome practical trend to thought and enriched theory by practice, has filled the mind with manifold concrete facts and illustrations and thus tended to make all more efficient as teachers later. Several have spontaneously and independently expressed the purpose, wherever they are situated later, of inaugurating or co-operating in this work, and of thus rendering more service in the community in which they are placed. The interest and enthusiasm and the sense that they have gained personal enlargement and power has thus been nothing less than notable. It is the belief of instructors too, that, much time as has been given to this work, the regular studies have not suffered; while some have been prone to throw themselves into it with an abandon that made it hard for them to maintain the proportions of reading and field work or to use adequately the resources that have been prepared for and urged upon them as to the best that has been done along their lines elsewhere. The latter is of course necessary for comparative purposes and as a basis for stimulating local authorities to do as well as other cities have done. The literature here is now extensive and profitable for applications of psychology. Instructors, too, have also needed to do more or less visitation as well as to devise new pedagogical ways and means not down in the books. Thus for all concerned it has been more or less pioneer, if not worthy the name of research, work. All have come into quickening touch with life as it is actually lived out by men and women of all, but especially of the poorer, classes in the community; and thus the ever-present danger of scholastic isolation has been mitigated. In not a few cases, our visitations have led to immediate personal relief from distress; and this function has added its zest. Certain organizations of vicious boys and girls have been exploited by the press in a way which tended to injure the fair name of the city, and which brought workers from a distance in at least three cases to exploit these evils for the delectation of the public. We found out the facts in these cases, which were inaccessible to both the police and the reporters and which, although bad were much less so than had been represented, and were able to do something to mitigate the evil. On the whole, while our work was at first misunderstood and sometimes feared in certain quarters, we have made marked progress in winning the confidence and support of those whose friendly co-operation was most desired and most needful; and no defects or evils, of which it was inevitable that many should be found, have been proclaimed to the general public and many have already been remedied. Thus, if the work should end this year, instead of going on as it will do with augmented resources and effectiveness, it has already justified all the expense and effort it has cost. It is also hoped that another year, besides our regular workers, the appeal for volunteers who can give a definite if limited amount of time as coadjutors here, may be secured both for their own benefit and for that of the cause.

Finally, we add below samples of a few of the representative syllabi, given to the investigators as initial suggestions and which served as a point of departure for their work.

SYLLABUS ON CHEAP THEATRES, VAUDEVILLE, MOVING-PICTURE, DIME, NICKELODEON, AND PENNY-PEEP SHOW, ARCADES, ETC., IN WORCESTER

1. Provide note-book, visit each, list with address, and describe all you see.

2. Note: How long each has been in operation.
   What hours of the day and evening it is open.
   How long each show lasts.
   Price of admission.
   Length of performance.
   Seating capacity.
   Amateur night.
   Number and character of attendance. Seasons of greatest attendance.
   Describe each exhibition you see.

3. How much are the lights turned down and how dark is it? Ventilation?

4. What proportion of boys go with girls?

5. Estimate the cost of the show; rent of films; where they come from; and any facts about dealers in them; get price- and subject-lists.

6. Estimate the gate money; profits.

7. Collect state laws and state ordinances bearing upon such shows; find out how far they are enforced.

8. Collect in a scrap-book all advertisements of these shows, whether posters or in the press. Describe what is done to call attention to them;—*e. g.*, Barkers, sandwich men, vehicles, etc.

9. Find out all about the bureau in New York that controls these films in the interests of morals.

10. Consult Juvenile Court, the head of the Boys' Club, Miss Witherspoon, perhaps later Father McCoy, the chief of police, Matthews, Judge Estey, teachers, and others.

11. Ask teachers or the president of the Boys' Club whether it is practicable to have children write their experiences with these shows, describing the best or worst representations they have seen.

12. Get teachers to revise and suggest additions or modifications of this syllabus.

School Yards:

1. Size of each and whether grass or gravel.
2. Number of children in the school and square feet per child.
3. When do these school yards open and close?
4. What school rules govern their use?
5. Is there supervision of play?
6. Length of recess and rules during it? Customs about going in and out?
7. Play apparatus in the yard?
8. Noon hour and playgrounds?
9. Flowers or gardens in the playgrounds?
10. Sheds for rainy days?
11. Are children from other schools allowed in the yard?
12. Regulations for summer? Are they opened or closed and for what hours?

Dooryards (back and front):

1. Have children of the grades in sample schools write school compositions on this subject, on the following lines:

a. Have each describe his or her own front and back yard; how the pupil uses them morning, evening, Sundays, holidays, summers, winters.

b. How many and what kind of playthings or apparatus they have; what plants, shrubs, trees; is the yard closed by a fence; what could the child do or what could be put there to make the home yard more attractive?

Seasonal uses? How many games desirable for growing children can be played in Worcester yards?

c. Barns and stables—what is in them? The child's duties toward horse, cow, sheep, hens, pigeons, turkeys, dogs, cats, or any other domestic animal? Are there any other outbuildings that the child uses?

2. What is the hygienic state and also need in these yards? should the city take ashes, garbage, etc.? Children's duties in sweeping walks, shovelling snow, etc.?

3. What tools has the child for digging? Are there stones, bricks, or blocks of wood, boards, etc., for building? If so, what is done with them?

4. What is the custom and law about the use of yards by those who dwell on the upper floors of three-deckers? The uses of woodyards, coal, kindling, back alleys, basements, etc.

5. Observe and note same points with regard to public institutions for children—orphanages, houses of refuge, etc.

Parks and Playgrounds of Worcester

1. Get or make a map of each park. History of system and cost.

2. List and describe all play apparatus (swings, teeters, bars, etc.) provided by the city; cost; date of putting in each.

3. Collect park rules and ordinances on plays, games, and all that pertains to children; hours of opening and locking up the play apparatus.

4. When and where can ball and other games be played? Regulations for coasting, skating and bathing.

5. Get copy of all park rules that are posted.

6. What animals are there, if any, and what are the rules about teasing, feeding, observing them, etc.?

7. What regulations are there about flowers, plants, and trees?

8. Seats: what kind, material, how placed with reference to privacy or exposure? When are they put out in the spring and taken in in the fall?

9. All about drinking-fountains: cups stolen; pollution; nuisances.

10. What about sheds and other protection against rain and snow? Closets?

11. List of arrests made under park regulations and in parks: causes; ages; penalties, etc., for the last five years.

12. Ditto accidents.

13. See the Park Commissioners and get information; see what literature they have collected concerning the Park System of other cities.

14. Go to Dr. Theodate Smith and Dr. Wilson in the Library for literature on the subject.

15. Describe ideal parks elsewhere, especially Chicago park system.

Holidays

Have children write compositions on:

1. What I do Saturday afternoons, evenings, Sundays, rainy days.

2. How I would like to spend Thanksgiving, Fourth of July, Christmas, New Year's, Hallowe'en, St. Patrick's Day, Labor Day, Washington's Birthday, Memorial Day.

3. In free time, what I do out of school: list of home duties; selling papers and other opportunities for earning money.

4. A routine day from rising and going to school, including after school and evening.

5. What time I arrive home after school, and how I spend all the time until school opens. How long after school closes I go home, and how the time is spent after both sessions of school.

6. Why I like to walk the streets and to go around instead of going the most direct way.

Besides the two preceding departments: A. Children's Institute, and B. Special Child Surveys in Worcester, there are two more lines of child work in the city which are not under the control of Clark University, although in sympathetic relations with it. These are the following:

C. *The Worcester Conference for Child Welfare*, President, Rufus B. Fowler, Secretary, Austin S. Garver, Chairman of the Executive Committee, Father John J. McCoy. Under the general supervision of this organization the following large committees composed of citizens and experts were appointed:

a. Health in matters predominantly affecting children.
b. Child delinquency and crime.
c. Milk.
d. Playgrounds.
e. Amusements including theatres, nickelodeons, dance-halls.
f. Publicity.

Each of these committees has held meetings, enlarged its numbers, provided public lectures by experts from various places, etc. An advisory committee of some two hundred and fifty leading citizens including the representatives of all child welfare institutions in the city, as well as the above committees, has been organized. The report of the work in this field will be made later and can be obtained by addressing the Secretary, Austin S. Garver.

D. *National Child Conference for Research and Welfare*, a fourth line of endeavor which like the third is independent of the University, organized last summer. President, Dr. G. Stanley Hall, Secretary, Dr. Henry S. Curtis. A five days' congress of fifteen sessions and nearly fifty addresses by twenty-seven child welfare societies was held, the Proceedings of which are now printed (bound in cloth, $2.00; paper $1.50; address Louis N. Wilson, Worcester, Mass.). Another conference of similar character will be held at Clark University June 28, July 2, of the present year. It is felt that this organization has great possibilities in it and that there should be municipal bureaus or departments organizing all institutions for the welfare of childhood, also State bureaus, and perhaps ultimately a national bureau.

Reports on both the above (C. & D.) will appear later.

THE TEACHING OF THE FACTS OF SEX IN THE PUBLIC SCHOOL

By **Clara Schmitt**, Chicago, Illinois

Among the many educational problems of the day we are coming to number the teaching of the facts and hygiene of sex. The importance of the problem becomes evident from the consideration of the evils which the neglect of sexual hygiene leads to in society. These evils arise from ignorance of the results of indulgences uncontrolled by moral and hygienic considerations and may be in large measure prevented by proper instruction. This paper will first discuss briefly the scope of these evils as they have recently been brought to light in a mass of literature through the Society of Sanitary and Moral Prophylaxis in America, the Society for Fighting Social Disease in Germany and certain independent writers. It will then discuss the problem of instruction in sexual hygiene and attempt to show that such instruction is a practicable remedy for much of the evil.

The evils of sexual perversion are concerned with four phases of social and industrial life, the hygienic, economic, moral and æsthetic.

Physicians have in recent years been disclosing the prevalence and virulence of venereal diseases. It is variously estimated that from twenty-five to seventy-five per cent. of the population is afflicted in some form. Of the German army over eighteen per cent. are affected, of the Italian army over fifty-four per cent., with the armies of other countries ranging between. It affects all classes. Of the student body of Germany twenty-five per cent. are so afflicted. Of 33,670 homeless men cared for in three years by the Municipal Lodging House of Chicago, 4,875, or ten per cent., were virulently affected.[1] Physicians of Germany estimate that measles is the only disease surpassing in frequency venereal diseases; in the United States they are prevalent to the same extent.[2] The disease affects all ages.[3] The Committee of Fifteen report that in New York, "A considerable portion of syphilitics treated in the hospitals are boys in their teens. Probably a majority of all sufferers from syphilis are infected before their twenty-sixth year. Of ten thousand syphilitics who came under the observation of Professor Fournier, 817 had been infected before the twentieth year, and 5,130 between twenty-one and twenty-six." Of the 3,122 children brought before the Juvenile Court of Chicago in 1908, one per cent. of the boys and twenty per cent. of the girls were suffering from venereal infection.[1]

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[1] Raymond Robbins: Education in Matters of Sex, Educational Phamphlet Society of Sanitary and Moral Prophylaxis.

[2] There are at present no satisfactory statistics.—Editor.

[3] For further statistics and bibliography see Henderson: Eighth Year Book of the National Society for the Scientific Study of Education, Part I.

The harm of this form of disease does not end with itself but is also the direct cause of many others. To it are due ninety per cent. of locomotor ataxia; seventy-five per cent. ocular paralysis; a large proportion of general paralysis; eighty per cent. paresis; ten to thirty per cent. blindness; and from thirty to eighty per cent. of diseases peculiar to women.[2]

Neither does its baneful effects end with the original victims, but is communicated to the well through bodily contact of the diseased parts, or with discharges of the disease in toilet rooms, drinking cups, towels, etc., and is also transmitted as a taint in the blood of the offspring and manifested in many forms of degeneration of body and mind. These diseases are spread throughout the community through prostitution.

This great amount of disease is the source of great economic waste. Every sufferer is at some time during the period of infection, which may last indefinitely, wholly or partly incapacitated for work. The burden of the blind, degenerate, and feeble minded is almost wholly due to its effects.

These facts indicate the necessity of teaching for the prevention of evils which manifest themselves largely in adult life. A further urgent reason for sexual enlightenment concerns itself with habits widely prevalent among children. While a certain per cent. of children are found suffering from the effects of precocious social vice, a great number are threatened with the results of solitary vice. The prevalence of the habit of onanism is testified to by many writers and observers.[3] Moll, in his practise as school physician, found it to exist almost universally among the school children of both sexes in Germany. The habit may be acquired in many ways, through the accidents of clothing or bodily position or through the teaching and example of comrades.[1]

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[1] This does not mean a greater prevalence of venereal diseases among girls than among boys. The statistics of the court show that girls are brought there for five crimes, boys for nine. Annual report, 1908.

[2] Morrow: Control of Syphilis and Venereal Disease, Boston Medical and Surgical Journal, Jan. 31, 1908.

[3] Hall: Adolescence.

Physicians are not agreed upon the physical effects of this practice. Some ascribe to it all the nervous disturbances which the body may suffer. Lately the opinion has become general that if not carried to excess the habit is not productive of physical harm. Many children recover from it voluntarily through the developments of conceptions of higher ideals of personal purity, or through absorption in the interests of work or study or athletics. Moll reports many such cases which he has watched through their development to adult life and parenthood with no observable evil results upon either themselves or their children. Among many children the secret fear of the sin of the habit which they cannot break and which may be practiced in sleep leads to serious effects, melancholia, shrinking from society, and sometimes suicide.

The habit may, however, lead to an excessive practice in itself or to prostitution. In either case the subject is a more or less unfit member of society and may be a positive menace to it. The excessive practice of the habit leads to nervous disturbances and fatigue of the whole organism. Mental and physical development are arrested in greater or less degree.

The victim of the habit of sexual perversity in any form is robbed of participation in, or appreciation of, a large realm of the æsthetic life of the period. Much of our inheritance of art and literature has for its content the purer, finer phases of romantic love. Whoever has degraded himself to a low order of sexual indulgence is robbed of the power to enjoy this phase of our artistic life, and he is also robbed of the power of assuming a frank and fine attitude toward members of the opposite sex. He may also lose the feeling of the need of the opposite sex with its consequent limitations to social activity and enjoyment.

The moral factor of our problem concerns itself with the elements of self-control and consideration for the welfare of others. To control oneself to the end that a good heredity may be passed on to one's children, or that one may be able best to fill his place in the world, or to develop one's power of enjoyment above the merely sensuous, are ideals easily developed in the mind of the young and may be made of much influence in the shaping of conduct. But such control is prevented if the youth grow up in ignorance of the relationship between immorality and disease and their hereditary effects; or if he is allowed to acquire habits in early life which are very difficult to break; or if he is allowed to adopt or tolerate the "double standard" of virtue.

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[1] Moll: Das Sexualleben des Kindes.

The most important condition among those responsible for the evils of sex perversions is the lack of instruction of children in the facts of sex. This has for its cause the feeling of shame for the sexual life. Parents cannot speak to children concerning it without shame and embarrassment, and many consider it positively wrong to give to young children true answers to their questions concerning such events as the coming of the baby brother or sister. They fear that they will bring to the child's mind impure thoughts and images. Hence the stork myth and other stories are invented to satisfy the inquiring little mind. Höller[1] says that this false modesty has caused to develop among us another language alongside our ordinary language, one of symbols and significant smiles for the initiated when there occurs the mention of sexual topics. We have also developed a hypersensitiveness which sees significant meanings in the most innocent remarks of the naïve. We maintain, so to speak, a double attitude toward our world in which part of it is treated frankly and appreciatively, another part most necessary to its existence, with shame. Among gatherings of young people agonies of embarrassment are often caused by accidental or innocent allusions, even remotely, to sexual subjects. The writer recalls vividly such an incident at a table full of young college students and the few moments of embarrassed silence after a more frank young man had announced the birth of a little niece.

The secrecy with which sex matters are discussed by those about him and the putting off of his questions with inadequate answers arouses in the child an extreme curiosity. He then proceeds to ferret out the problem for himself. His education in this matter then comes from his more enlightened companions. From them he learns that his parents have deceived him, with a consequent loss of confidence between him and them. From them he learns only of the bare brutality of the sex act, but nothing of its meaning or end in the process of nature. Having gained his knowledge surreptitiously and in a form which would not be tolerated in conversation with older people the child develops a hypocritical attitude toward his parents and teachers and a general lasciviousness with the sharers of his knowledge. In the schools this comes to light in the form of lascivious words or phrases scrawled upon the walls of toilets or other places where the children may happen to congregate without supervision, and of occasional reports to teachers by young girls of improper conduct toward them on the part of boys. In some places, indeed, a more searching investigation discloses the prevalence of precocious social vice among larger or smaller groups of children.[1]

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[1] Höller: Die Sexuelle Frage und die Schule.

That much of this harm may be prevented by a course of instruction which would accustom our youth "to hearing natural things spoken of and treated in a natural way and to learn to speak of them naturally themselves"[2] is scarcely to be doubted.

Having discussed the need of sexual enlightenment the question arises, when, where, and by whom this enlightenment should be given and what it should comprise. In Germany where most attention has been paid to the subject, lectures on sexual topics are given in several universities and to graduating classes of some of the gymnasia.[3] Waiting until after the adolescent period to give this instruction is, however, beginning far too late. Interests in sexual subjects arise in the child's mind long before the awakening of the sexual life. Before this period has arrived the child may have been subject to all the dangers attendant upon ignorance. He will almost certainly have acquired the knowledge he does possess from impure sources and also our present attitude of shame toward it. This makes it then nearly impossible for the child to assume an attitude of frankness or unimpassioned scientific interest. Many teachers deal with the subject very frankly as a moral issue whenever occasions showing its need arise, but this also has the disadvantage of attempting to apply a remedy after a possibly preventable ill has been incurred.

The first childish interest in sexual matters may occur as early as five years of age and generally centres about the coming of the baby brother or sister. The questions that the child asks then should be answered truthfully and fully enough to satisfy. This method has a very gratifying effect upon the child's attitude toward the new-comer and his respect and reverence for the parents. Many fathers and mothers have contributed to the Ladies' Home Journal at times during the last three years accounts of the good results upon their children of such confidential talks. The information cannot be well given without emphasis upon the mother love, and in due time that of the father, in allowing the baby to be born. One such incident in the writer's experience may serve to indicate the good results of such a course.

The first grandchild of a large family was expected. The youngest child, a little girl of twelve, who had grown up in the farm home with few companions outside of the family and those who came to the house, had never asked any questions of a sexual nature. An elder sister thought it wise to tell her of the coming event. Advantage was taken of the little girl's love for babies and her interest in a neighbor's baby to give the information in a natural way. It was rather evident, however, that the little girl was already possessed of some knowledge of which she was ashamed, but she soon became unembarrassed and asked several questions which showed that she had been thinking of the matter. The good effects of the instruction showed itself in her happiness at being allowed a frank social admission into the family's loving expectation of the coming event. Such instruction, of course, can only be expected in families of high standards, but many more are capable of a higher standard of appreciation of reproduction if it were presented. In another family in which no such instruction had ever been given by the parents the children learned that a new member was coming. They discussed the matter among themselves, looked forward eagerly to the event and even selected a name which later they insisted upon bestowing. But instinctively not a word upon the subject was said to the mother, and probably that mother will never realize the sweet companionship with her children which she missed because of her false modesty.

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[1] Julian W. Mack: What Every Girl Should Know, Ladies' Home Journal, May, 1908.

[2] Höller: Die Sexuelle Frage und die Schule.

[3] Kohn: The Teaching of Social Hygiene, Educational Bi-monthly, Dec., 1909.

Since, then, the child's interest in sex questions arises early, why should not the whole thing be left with the parents? Naturally, the first questions must be answered by them. Unfortunately, however, the parents of the present generation have been brought so much under the influence of shame in reference to the sexual life that they are unable to speak to the child frankly. But granting that the first childish questions are frankly answered, parents are not necessarily teachers and do not know how to adjust in their instruction the various phases of this complex problem to the child's understanding. The parent may also have no other biological knowledge with which to correlate the facts of human regeneration.

The physician, by reason of his scientific preparation, is a much more efficient agent than the parent. Dr. Helen C. Putnam[1] in her investigation of the teaching of sexual hygiene in twenty cities of the United States found six schools in which physicians gave lectures on sexual hygiene. But the physician, too, may not have teaching ability and for other reasons may be unable to present the long line of biological instruction which is necessary to place the subject in its natural setting in the general life process. In Germany the claim is made by the clergy that since the question is an almost wholly ethical one it should be given over to the teacher of religion. But the fact that the question is also scientific leaves any other than scientifically trained persons unable to handle it fully. Since scientific preparation is necessary, and many pedagogical considerations enter in to determine the method and form of teaching, the task naturally falls to the teacher, though the physician and religious influence may be of great influence in their own fields.

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[1] Putnam: Instruction in the Physiology and Hygiene of Sex, Boston Medical and Surgical Journal, Jan. 31, 1906.

The first pedagogical consideration entering in to determine the form and material of instruction is the fact of developmental stages in the life of the child himself. With respect to sex interests we may divide the life of the child before the adult stage into two periods, the objective or scientific and the subjective or ethical. The first comprises the second period of childhood, the latter the period of adolescence.[1] In the first period the child's interest is purely scientific. The questions he asks about sex may be put in the same class with those he asks about rain and clouds and plants. He wants to know where the mother cat found her kittens and how the birds got into the nest. At this period the physiological ripening of the sex organs not yet having taken place, sexual activity cannot be aroused through suggestion, though he is likely to contract the habit of onanism. Sex topics are not accompanied with a feeling of shame in his mind except as he acquires it from his social surroundings. To learn at this time that the young are produced from the body of the mother has no different significance than to find that flowers grow on plants or that pebbles are found by the seashore. To be sure a different significance in the relationships sustained between human parentage and offspring and that found in the lower animal and plant world, must soon become apparent to him. Miss Phelps[2] tells of the roomful of school children who had a pet female rabbit and desired some little rabbits. They discussed and carried out the means of attaining their desire, and awaited the end in interested expectation. They took very tender care of the mother and great was their joy when the little ones came. Every teacher has seen children manifest the same joy when there emerges a butterfly from a long watched cocoon, or a plant cared for in the schoolroom comes to bloom.

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[1] Moss: Die Psychologischen Grundlagen der Sexuelle Belehrung.

[2] Jessie Phelps: The Teaching of Sex in the Public School, Western Journal of Education, Dec., 1909.

In the adolescent period the great physical changes which take place cause strong mental disturbances of feeling. The interest of the child in sex matters becomes subjective, he must adjust his ethical ideals and his habits of self-control to this new possibility of action. In the first stage the emphasis in instruction should be laid upon the biological significance of reproduction, in the second it should be upon the social significance of sexual activity, its hygiene and ethical and æsthetic phases. It is in this second period that the school physician and religious influence may render greatest service.

Höller says:[1] "Though it is the social meaning of the sex life which is most important it must be founded upon and proceed from sound scientific knowledge. Its close dependence upon, and connection with, the well-being of the body makes necessary for the understanding and control of it an exact knowledge of the body. The handling of the ethical element of the question without reference to, or with neglect of, the physiological can only lead to empty phrases. To handle it outside of its setting in the universal process of life is to place it in the consciousness of the pupil in a realm apart and to surround it with a halo which opposes a natural unconstrained thinking and speaking of it. The instruction should tend to make sex characteristics of no greater importance than any other physiological or biological processes. The sexuality of man in all its processes should be only one case among many others."

Professor Höller has outlined a course of instruction admirably suited to the first stage.[2] Along with the general anatomical-physiological problem he selects for attention in the elementary teaching the following phases: (1) The preparation of the parent for the expected young, such as nest building among birds, the finding of sheltered places for bringing forth the young, the storing up of food along with the egg on the part of some insects. (2) External and internal fertilization. This should begin with observations of the higher plants. Among the animals fishes may serve as a starting point. The point is brought out that the possibility of external fertilization depends upon the absence of an egg covering. Then it is easily seen that if the egg has a special covering fertilization must take place before the development of the covering. The necessity for the monstrous number of fish eggs produced is deduced from consideration of the dangers to which the unprotected young are subject. The frog serves as a link between the two methods of fertilization—external and internal

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[1] Höller: Die Sexuelle Frage und die Schule.

[2] Die Sexuelle Frage und die Schule.

—among animals. The latter method in which the male substance passes into the body of the female necessitates special sex organs. The advantage of this method is brought out in considering the greater protection afforded the egg. The special anatomy of the sex organs need not be taught in this early period. (3) The development of the egg into the embryo and the principal stages of the process. Cell division and the differentiation of organs, some of which has already been dealt with in botany, should be carried over to the study of selected types of vertebrate animals. (4) Birth, or leaving of the egg sac. The greater protection to the young by reason of the development of the embryo within the body of the mother is brought out. (5) Post embryonic development, the bringing up of the young to sexual maturity. This is the most ethically important point. The duties of the parents in the rearing should be considered here. (6) Attention is called to the danger and pain to mothers in the birth process; the source of mother love, the pains endured for the child. (7) The problem of heredity should be touched upon in observing the likeness of children to parents.

Höller calls attention to the necessity of including the special human considerations in the instruction. He says that to leave off with plant reproduction is not sufficient since the process in the plant world is passive and few outward analogies can be made with human reproduction. To leave off with reproduction in the lower animals is to leave out the possibility of the development of the ethical element. In the lower realms of life nature is prodigal of the individual, only the race is important. Then, too, Nature's methods among the animals and plants is mechanical. The individual is subject to his instincts, while in the human world the individual must regulate and control his instincts.

These are the special phases of the methods of reproduction which the child may be led to observe in the regular nature study work of the school. The completeness with which it is carried out may vary with the scope of the nature study course itself and with the laboratory equipment of the school, though little more than a microscope is necessary in the way of equipment.

The work in the nature study course should be supplemented by the physiology which should include the gross anatomy and function of the various sex organs and the related hygiene. In the earlier years the hygiene should teach the danger of manipulation of the parts, and later the special sex hygiene of adolescence. It is not necessary to wait with the later hygiene until each individual of the class has arrived at the adolescent stage. It is feared by many that if attention be called early to the sex organs a precocious development may result. This is, however, a very remote and hypothetical danger. But however real it may be, the fact is that the child does have his attention called to the sexual parts of the body. First, it is in the same way that he gives attention to hands and ears and nose, later he learns functions and uses. The question here, then, is shall he gain the second part of his knowledge in its normal setting of other physiological knowledge gained, or secretely, abnormally and incorrectly.

Neither is it desirable that the classes should be segregated for the purpose of teaching the facts of sex. That would operate only to make it more conspicuous and create an attitude of shame and constraint. If treated in the same way it is not likely that the children will think of it with a different attitude of mind than they think of the processes of digestion and circulation.[1] In the teaching of sex hygiene it is no more necessary to go into gruesome details than it is in the teaching the hygiene of food and air. A persistent neglect of any of the laws of health may cause diseases which we do not find it necessary to describe in order to impress the sense of their danger.

The teaching during the high school period of the special ethical considerations of the sex life can scarcely be accomplished until we have prepared courses for the teaching of general ethics. Sexual ethics is only one of the many ethical problems of life and cannot be considered apart from them. At present the ethical problems of sex can only be considered incidentally with physiology.

The greatest difficulties in the way of instituting such a course of instruction are the objections of parents and the common attitude of shame on the part of teachers. Teachers will find, however, that with unimpassioned study of the subject their embarrassment before it will vanish. Children of high school grade betray great embarrassment at first mention of the subject by the teacher, but they very soon come to accept the frank attitude of the teacher and are glad to discuss its problems. The writer's experience with high school girls in the gymnasium, where talks on sexual hygiene and a more or less personal knowledge of sexual cycles, etc., is necessary for the safety of the gymnastic work, has shown that girls come to feel a great gratitude for the opportunity for frank discussion. One incident out of several with such attempts among high school boys may be given. In the high school of a small town the teacher in charge of a group of freshman and sophomore boys learned that some of them were congregating at night in the back of a store and listening to the questionable stories of some older men. The boys were taken into a separate classroom and for one period each day for a week were given some lessons on regeneration in the biological world. This was given that they might be led to see the universality of the principle. And at last some talks on the need and necessity of personal purity were given. The organization of the school work prevented a further treatment of the subject. The sequel, however, came some weeks later. One boy of the class had not profited by the instruction and complaints came of his having written lewd notes and shown obscene pictures to the girls. The teacher was unable to influence the boy, and talked to his companions about it, frankly admitting to them her inability to get James to see the wrong of his acts. The boys said they would make him stop it and did so through threats of ostracism from their baseball club.

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[1] It would probably not be wise in view of the present state of public opinion to attempt instruction with mixed classes of children already enlightened in the usual way. There would be less objection if begun tactfully with young unspoiled children. The children themselves would not be shocked and so would not carry that attitude home with them to the parents.

We can hardly hope that any course of instruction will eradicate all the ills, or do it very quickly. But knowledge of evil results along with the development of higher ethical ideals will certainly operate to save many who would otherwise succumb to tempatation. And the way for the work must be very tactfully prepared, that public prejudice be not encountered. Dr. Putnam found thirty schools in which the facts of regeneration up to man were taught to elementary grades with the nature study. A beginning of this sort forms a very good foundation for further work. At the same time it should be included in the biological work of the normal schools and colleges. Every normal school student who expects to teach in the elementary school should have at least a year of work in biology and a year of human physiology. The physiology should include the anatomy, physiology, and hygiene of the sexual organs. If the facts of sex are to be treated in proportion to their importance in the physical and social life and growth of the human being much more time must be given to that part of physiology than to other portions. The sex organs undergo radicalc hanges in their character and functioning during the life of the individual. The two most important periods in the life history of the individual are conditioned upon these changes in the sex organs. Since one of these changes occurs during school life the physiology and psychology of adolescence is of great importance to the teacher, and should be included in the physiology and psychology of the normal school.

We can expect of such teaching in the schools the development of a wiser generation of parents who will be able to take upon themselves a part of the work of instructing their children in the same subject. The moral attitude of the parents of the future will be changed from that of false shame toward the most necessary of human functions to an appreciation of its sacredness and beauty when controlled in the interests of the future generation.[1]

Ferdinand Kemsies says of such teaching in the school,[2] "The enlightening word should not be dry and uninteresting, purely scientific and hygienic. It should be bound up with a larger intellectual sphere and may contain a personal note. The origin and reproduction of life upon our planet is connected with organic processes which have a relation to our intellectual and moral religious life. The stream of life which flows through time and space, its waves made up of individuals, families and peoples, charms our meditations, carries us on in wonder. Its aspect, like the contemplation of the starry heavens, arouses in us earnest religious thoughts, solemn moods, and ethical impulse. Reproduction and heredity appear as mysterious and wonderful means of feeding this stream, of maintaining it ever pure and fresh, of keeping youthful its material and yet ever spiritual and ethical. The mother with her bodily and spiritual relation to reproduction is ordained in the regenerative process as the protector and teacher of all the tender emotions with which man is endowed. Through the maternal instincts one generation is linked to the following and passes on to it the holiest experiences of the human heart, love, sympathy, and pity. The egotism of the individual is repressed through the sexual needs and instincts. Through such teaching the child is led to conceive of himself as a natural and moral link in the chain of the generations."

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[1] Moll discusses the social significance of shame in Das Sexualleben des Kindes. Shame and disgust of any kind, he maintains, are not instincts but the effect upon the individual of the general social attitude. The things which are considered shameful at one time may not be so considered at a later period. A disgusting form of food with one people may be a delicacy with another. In America the sexes mingle without shame upon the bathing beaches, while in Germany it is considered highly improper.

[2] Kemsies: Die Sexuelle Aufklärung der Jugend. Zeitschrift für Pädagogische Psychologie, Vol. 8, p. 125.

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THE CONTENTS OF CHILDREN'S MINDS

By WALTER LIBBY, PH. D., Northwestern University, and MISS HELEN COWLES, MISS P. S. GREENE, MR. J. H. NORRIS, MR. T. A. O'FARRELL, and MR. C. D. LOWRY.

Before recording the results of our investigations into the contents of children's minds, we must devote a little space to the earlier studies in this field, contenting ourselves with a particularly brief comment on the method and scope of the first three or four studies, whose history has already been set down in English.[1]

The first investigation of the contents of children's minds of which we have a published account was begun at Berlin in 1870, and put on record by Bartholomäi in the following year. The young children, just entering on their studies, were simply asked, in 84 of the city schools, about certain ideas: "Did you ever see a hare?" "Do you know what a mountain is?" Some seventy-five such ideas were made use of. The questioning was rather loosely carried on without strict uniformity of method, and the results from 13 of the schools had to be put aside in making the final record.

In 1879 Dr. Karl Lange examined 500 elementary pupils of the city schools of Plauen, and 300 children of 21 village schools of the vicinity. His method was to ask such questions as: "Who has seen the sun rise?" "Who has ever been at church?" He hoped to discover the presence of groups of ideas that would serve as apperception centres in the school work of the first and second years. The object of the Berlin investigation had been rather to discover deficiencies in the child's experience that might be made good by object lessons and other means.

In the investigation begun by Stanley Hall at Boston, in 1880, and continued for several years, 162 objects and ideas were made use of in questioning the children in the first grade of the elementary school. The method of asking the questions was a notable advance on that previously used by German investigators. The pupils were examined three at a time by tactful and well-trained teachers, who strove after uniformity of procedure. They were not content with one question on each idea, but they sought by cross-questions to arrive at a real knowledge of the contents of each child's mind.

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[1] G. Stanley Hall: The Contents of Children's Minds, *Pedagogical Seminary*, 1900.

About the same time (1880-1884) Hartmann was carrying on his researches at Annaberg. Children ranging from five years and nine months to six years and nine months, 660 boys and 652 girls in all, were required to answer 100 questions. The examination was held by the teachers under the direction of Hartmann. An attempt was made to have the questions cover certain groups of ideas, such as plants, animals, divisions of time, etc.

Two more recent investigations remain to be mentioned. Seyffert, in his researches in Zwickau in 1893 and 1894, made use of a new method. Instead of asking the children whether they knew this or that, he presented various matters for their observation and asked for the names. The children at least know what they are able to name, though the knowledge revealed by the act of naming is not identical with the knowledge shown through other methods of investigation. The examination was conducted with an effort at uniformity by 13 teachers under Seyffert's direction. The children were taken four at a time to the number of 156. The complete answers were written down. First of all the children were questioned on the parts and contents of a home,—the walls, the ceiling, the floor, the furniture, heating apparatus, windows, and so forth. Then they were taken out and shown a meadow, a flower, a brook, a bridge, a road, and other such objects. In the third place they were questioned about plants and animals as shown in pictures. Finally the children were questioned concerning such domestic matters as the father's calling, the mother, brothers and sisters, toys, meals, punishments, and rewards. It was found that domestic life furnishes little children with their largest stock of definite ideas. Less power was displayed in naming the things represented in pictures than in naming things actually shown. So strong a tendency was noticeable to name the unknown from the known that a doubt is raised as to the wisdom of emphasizing the old elements in the new. The accuracy of the observation was found by Seyffert to depend on the extent to which the child had used the objects to be named. Moreover, those things that had been regarded with interest were likely to be named correctly, especially those things that concerned the safety of the child. What causes pain seems more likely to be known than what causes pleasure. Finally, it might be mentioned that Seyffert, as Hartmann had done before him, continued to watch the development of the pupils examined. It was found that those who had a poor stock of ideas on entering school, showed correspondingly poor progress later.[1]

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[1] Seyffert, Rich.: Beobachtungen an Neulingen. Deutsche Schulpraxis, XIII, 1893 u. XIV, 1894.

Finally in 1903 and 1904 Drs. Engelsperger and Ziegler, two public school teachers in Munich, undertook at the suggestion of Meumann, an investigation of the contents of children's minds on entering school.[1] Their method differed from that of previous investigators in making child-psychology, rather than pedagogy, the starting point. The value of the results in guiding the earliest school work was considered merely of secondary importance, and the research was to be from the psychological standpoint, unembarrassed by pedagogical interests. The children, 100 boys and 100 girls, were chosen with regard to the social condition of their parents. They were examined one at a time, uniformity of procedure being assured by the two investigators doing the work themselves. The questioning was adapted to the understanding and peculiarities of the children, and took the form of conversation with one pupil at a time. The ideas in reference to which they were questioned were divided into groups, and each of these groups of ideas was submitted to all the children to be examined in all the schools before another group was considered. This assured a greater uniformity of conditions than would have resulted if all the questions were submitted at one school before beginning the investigation at another. A careful record was kept of the answers, both the correct and the incorrect.

It will be observed that the six investigations reviewed above chose each as its subject the contents of children's minds on entering school. It occurred to the writer to extend this style of study to children who had not entered school, to others who on account of their social conditions had lacked the advantages of home training, to others again who had entered high school, and finally to a group of white and colored children found in the schools of Illinois. The special scope and purpose of each of these studies will appear presently.

I. CONTENTS OF THE MIND OF A FIVE-YEAR OLD BOY

The first of the following researches will help us to answer the oft repeated question: What can be done by a cultured mother to educate a child as a preliminary to school education? It forms a counterpart to the account by C. H. Bean, in a recent number of the Psychological Clinic,[2] of the effects of neglect in the home during the first six years of life. Some attempt was also made, as will be seen, to show the difference between the contents of the mind of a child of favorable family environment and those of children in an orphanage.

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[1] Meumann, Ernst: Vorlesungen zur Einführung in die experimentelle Pädagogik, Leipzig, 1907. Chap. V, Vol. I.

[2] C. H. Bean: The Psychological Clinic, May, 1909.

The subject of the following inquiry, carried on, and reported, by one of my students,[1] was a little boy of five years and nine months. He is the youngest of six children, the next older being a boy of eight. He plays a great deal with children younger and older, but has never been to the grade school. At the time he was questioned, he had been attending kindergarten for about three and a half months. He is strong and healthy, a little tall for his age, quite talkative, but not precocious. He cannot read or write, but can copy writing or printing so well that many people have been "taken in" by it. He is also very good at drawing, and, although left-handed, is in general very ingenious in working with his hands, perhaps because he has been so much with his older brother and has "followed his lead." He hears the older children discuss their school-work, and also hears politics, athletics, etc., discussed at home. The older children read to him, and his father is fond of asking him questions and of giving him problems in mental arithmetic.

What is your name? (Correctly answered.)

What is your father's name? (Correctly answered.)

What is your father's business? "Selling newspapers." (His father is publisher of a paper.)

What shape is the earth? "Round like an orange. It turns around,—rolls like a ball. China is on the other side. I don't see how we stay on top all the time, if the earth rolls. How do we?"

Name all the birds you know and can recognize. "Bluejay, robin, blackbird, sparrow, red-headed woodpecker, flicker, crow, pigeon, red-breasted grosbeak." (He can recognize more than that number.)

Name all the animals you can. "Elephant, tiger, lion, leopard, monkey, camel, deer, bear, beaver, squirrel, rabbit, guinea-pig, pony, horse, pig, cow, dog, cat, chicken, badger, fox."

Is a chicken an animal? Is n't it a bird? "Of course not. It can't fly."

Of what is bread made? "Dough."

Of what is dough made? "Oh, sugar and milk. Lots of things. I think the baker makes it."

What do you want to be when you grow up? "A fire-chief or a motorman."

Don't you want to be a newspaper man like your father? "No, I'd rather be a fire-chief. Then I could go to all the fires I wanted to. Ask me some more like that."

What is your favorite animal? "The elephant is my favorite animal, because it is the biggest. I would rather have an elephant than anything else if I had a place to keep it. More children could ride on an elephant than on a pony."

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[1] Miss Helen Cowles.

Where does bacon come from? "We get bacon from the pig."

Where do pork-chops come from? "From the cow, I think."

Where does beef-steak come from? "From the cow or the horse, I can't remember which."

Where do we get milk? "From the cow, of course. The sheep gives milk, too."

What country do you live in? "Des Moines."

What state? "The United States of America."

Who is president of the United States? "Taft."

Who was president before Taft? "Roosevelt."

Where does Taft live? "In Washington. I haven't seen him, but John has."

Who is the governor of Iowa? "Mr. Cummins."

How many wheels are there on a street-car? "Eight."

How many wheels are there on a wheel-barrow? "One."

How many nickels are there in a dime? "Two."

How many pennies are there in a dime? "Ten."

How many pennies are there in a dollar? "A hundred."

How many pennies are there in ten dollars? "Ten hundred."

How many quarters are there in a dollar? "Four."

How many nickels are there in a dollar? "I don't know."

Where does coal come from? "From the ground. In the mines."

How does it get in the ground? "It has always been there."

How do you know it has always been there? "It is just like the stones, only the dirt makes it black. No, I think coal is just hard mud, because stones won't burn. I *think* hard mud would burn. I'll ask father and tell you."

What are your shoes made of? "Leather off a sheep."

What is your favorite game? "Skip and tag."

Name the colors that you know? "Blue, green, pink, red, orange, lavender, purple, yellow."

What is the sun made of? "It is a big ball of fire."

How big is it? "Bigger than this world."

How big is the moon? "Like a great big orange. Not so big as the sun or the earth. About as big as the house, I guess."

When you fall, why do you fall down instead of up? "You are so heavy, you just *naturally* fall down."

What is your suit made of? "Thread."

What is thread made of? "I don't know. I think it grows on some kind of a bush."

Name some people that the Bible tells about. "Cain, Abel, Moses, Goliath, Daniel, Jesus and the angels."

Who was Abraham Lincoln? "A president."

Is he alive now? "No, in heaven."

Was he a bad or a good man? "Good. He never told a lie."

What did he do that was good? "Once he kept a store and a lady gave him six cents too much and he walked seven miles to give it back to the lady. He lived in Washington."

Who discovered America? "George Washington."

Point north, east, south, west. (Correctly done.)

What makes it light in the daytime and dark at night? "The sun makes it light in the daytime. Then the clouds come over it at night and make it dark."

Why do the clouds come over it at the same time every night? "To show us it is time to go to bed."

What are eyebrows for? "To make us look pretty."

Why do we have a Christmas every year? "Because it is Jesus's birthday."

Why do we have Easter? "So that the children can have Easter eggs."

I intended to ask some five-year old children at the Lake Bluff (Illinois) Orphanage this same list of questions, and accordingly asked for several fairly bright ones of that age. They were said to be "about six" (their ages were not known exactly)—two boys and two girls. They seemed to me younger than the other child. After I had become acquainted with them, I tried to question them, but they either would not reply at all or talked hard and fast upon some other subject. The other child had always answered the question I asked him. If he did not know, he seemed to make up the best answer he could. He did not talk upon other subjects.

The orphanage children all knew their names, and the name of the place—Lake Bluff. A few knew where they had lived before, but seemed to have absolutely no idea of location. They were all kindergarten children and knew all the colors *very* well. When asked what birds or what flowers they knew, all said, "Little blue ones," "Little pink ones," etc., instead of giving names. They knew a great many songs and recitations and liked to give them. Both boys wished to be storekeepers when they grew up. One little girl wanted to "be a lady that takes care of little children," and the other wanted to "ride on the train."

Probably I did not see enough of them to become so acquainted that they would talk freely. They seemed to know absolutely nothing of the world outside the orphanage. To such questions as, "Where does coal come from?" they would all say, "The man brings it," or some other similar answer.

I think the first little boy is an average normal child, and that the contents of the minds of the orphanage children were decidedly below the average. The investigation showed me more than ever the importance of home-training and environment, and especially the influence in the house of older children with active brains and lively interests. The child whom I questioned has an observing mother who always points out to him the parts of a flower, the birds, the different trees, the uses of machinery, and encourages him to use his hands in all sorts of ways. He can draw a steam engine and not leave out a single necessary part. In his drawings he shows that he knows such things as the number of toes each animal has. He scorns any one who does not know the difference between a camel and a dromedary. He seems to know little about history or geography, however; and the books he hears read are of the simplest kinds. He is a veritable question-box, and asks about *everything*. The question method seemed to appeal to him.

II. Contents of the Minds of Children in an Orphanage[1]

The first part of my study was conducted by means of a question list chosen from all those investigations mentioned in the article by Stanley Hall already referred to, with alterations to fit the surroundings of the pupils at Lake Bluff Orphanage. I asked them of twelve children from three to seven years of age. I have compared the percentage of correct answers with those Hall has recorded for sixty-four kindergarten children from the poorer homes. The results are decidedly unfavorable for the orphanage children.

Objects questioned on	Number of correct answers	% C. A.	Hall's % C. A.
Violet	8	67	
Dog-tooth violet	1	8	
Sunrise	2	17	47
Sunset	2	17	71
Triangle	3	25	
Square	8	67	
Circle	10	83	
Snail	5	42	57
Squirrel	11	92	74
Oak	4	33	
Plow	5	42	
Moss	4	33	
Rabbit	11	92	
Sleet or hail	3	25	47
Lake	12	100	
Willow	4	33	
Numbers 1-10	9	75	
Storm	8	83	

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[1] This second study is the work of Miss P. S. Greene.

Objects questioned on	Number of correct answers	% C. A.	Hall's % C. A.
Pig	11	92	78
Chicken	12	100	78
Worm	11	92	91
Cow	11	92	90
Wheat	1	8	68
Clover	7	58	71
Strawberries growing	5	42	
Beans growing	3	25	
Planting seed	6	50	
Roses growing	5	42	67
Dandelion	8	67	69
Apples growing	6	50	95
Location of ribs	1	8	32
lungs	3	25	
heart	11	92	
wrist	11	92	81
ankle	6	50	62
waist	10	83	64
knuckles	5	42	77
hips	3	25	76
elbows	10	83	88
right and left	8	67	96
cheeks	10	83	96
throat	8	67	86
Seasons	9	75	59
Rainbow	8	67	62
Clouds	10	83	
Stars	11	92	93
Moon	12	100	
Green	11	92	
Blue	12	100	
Yellow	11	92	
Red	12	100	
Shape of world	5	42	
Bath	12	100	
Butter, source of	3	25	
Meat, source of	4	33	
Sky	11	92	
Frog	9	75	65
Fish	11	92	
Butterfly	10	83	
Birch	3	25	
Pine	7	58	
Cornfield	4	33	68
Potato-patch	6	50	64
Woods	9	75	73
Bread, source of	7	58	
Carpenter at work	4	33	
Mason at work	1	8	
Shoemaker at work	5	42	
Honey, source of	4	33	
Beehive	6	50	
Ant	11	92	
Crow	5	42	

Objects questioned on	Number of correct answers	% C. A.	Hall's % C. A.
Bluebird	9	75	
Robin	11	92	71
Sparrow	8	67	
God	8	67	
Jesus	7	58	
Recite or sing stanza	12	100	
Daniel	3	25	
David	3	25	
Shepherd	6	50	
Sheep	9	75	
Dew	1	8	
Easter, why celebrate	1	8	
Christmas, why celebrate	1	8	
Fourth of July	0	0	

In the second part of this study a list of fourteen questions as to tastes, ambitions, etc., were sent to the third, fourth, and fifth grades of the orphanage school. Some of these returns throw light on the range of ideas in the minds of the children. For example, in answer to the question: What is particularly wicked? three boys of ten years, and one of eleven, said, "to swear," one of twelve "to be a sneak," one of eleven "to lie," one of twelve "to drink beer," one of ten "to steal," one of twelve "to get a spanking," and two boys of ten select boys of their acquaintance as particularly wicked. Nine mentioned killing or some other form of cruelty. Similarly of the girls, four mentioned killing birds, two, swearing, two, drinking, two, a spanking, two, bad men, and one, each of the following: harming good people, drunkards deserting or killing their families, unjust punishment of innocent, a robber, stealing, cruelty to animals, fighting, drinking. Except in three or four cases there is evidently a clearly defined conception of wickedness. However, the results of the second part of this experiment will be treated more fully elsewhere.

III. CONTENTS OF THE MINDS OF FIRST-YEAR HIGH SCHOOL PUPILS[1]

A list of about 80 questions was carefully made out and 500 copies printed. The papers were sent to the following high schools in the State of Illinois: Rockford, East Aurora, West Aurora, Elgin, Batavia, and Oswego. The questions were submitted to the first year pupils of each school in order to obtain some idea of the everyday or working knowledge of the average child on entering the high school. Consequently questions relating particularly to school subjects were purposely avoided, and those covering as many subjects taught by experience, hearsay, observation, and so forth, as possible, were included. Scope of knowledge rather than thoroughness in any one subject was the guiding motive in the selection of the questions. Since the papers were to be submitted to both boys and girls, besides the majority of general questions a few were included that would be of interest to only one sex.

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[1] This study was planned and carried out by Mr. J. H. Norris.

During the filling out of the papers in the different schools, no pupil was allowed to leave his seat, or to hold communication with any person. The length of time allowed was from thirty to forty-five minutes. At the end of this time, all the papers that had at least one question answered, were collected and returned to the investigator. The total number of papers received was four hundred and eight; of this number two hundred and eleven were filled out by girls, and one hundred and ninety-seven by boys. From Table I a fair idea may be obtained of the ages of the pupils. Of course it must be remembered that the papers were filled out the latter part of April. In order to obtain the age at entering high school, seven and a half or eight months must be subtracted from the ages given here.

TABLE I

Number of pupils	Ages		
	Minimum	Maximum	Average
Boys 197	12 yrs. 2 ms.	18 yrs. 2 ms.	15 yrs. 1 mo.
Girls 211	12 yrs. 11 ms.	18 yrs. 3 ms.	15 yrs. 2 ms.

Of the total number of boys, 22 lived in the country and the remainder in the city; of the girls, 16 in the country and the remainder in the city. For the sake of comparison, the answers of the city and of the country children are kept separate in all the following tables. Furthermore, to avoid confusion, it was deemed advisable to express all numbers in percentage form, instead of giving the actual figures in each case.

Taken all in all, the papers were fairly well answered, and in most cases as conscientiously as could be expected of boys and girls of high school age. The pupils are at least wide-awake, and they generally have an answer for everything. Whether all are as observing as might be expected it is difficult to say, but no paper was handed in that was made out by a stupid boy or girl. The answer papers, to me, seem to show that the average boy or girl in the first year of the high school has rather more knowledge than is generally supposed. The pupil's knowledge makes up in scope what it lacks in accuracy.

TABLE II

Questions		BOYS		GIRLS	
		City	Country	City	Country
Have you ever ridden on a train?	Yes	98	87	98	99
	No	2	13	2	1
Name city farthest from home you have visited	0—10—miles	5	12	2	11
	10—200 miles	74	55	58	40
	200— miles	20	11	21	25
	not stated	1	22	19	0
Where do you generally spend your vacation?	City	58	21	52	38
	Country	42	79	48	62
Do you know how to row a boat?	Yes	87	76	40	30
	No	11	24	56	70
	Not stated	2	0	4	0
Do you know how to swim?	Yes	81	94	10	18
	No	19	6	88	82
	Not stated	0	0	2	0
Do you know how to play baseball?	Yes	98	100	16	42
	No	2	0	82	58
	Not stated	0	0	2	0
Do you know how to play tennis?	Yes	25	36	31	36
	No	73	63	67	64
	Not stated	2	1	2	0
What kind of books do you like best?	Fiction	14	32	34	48
	Historical	11	12	14	0
	Children's	2	4	8	18

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
What kind of books do you like best ?	Adventures	47	19	2	3
	Miscellaneous	16	21	27	13
	Not stated	10	12	15	18
What is your favorite pastime in summer?	Outdoor games	60	56	16	18
	Reading	1	0	20	18
	Picnics and camping	30	28	18	30
	Walking, riding, driving	4	0	14	11
	Visiting	0	0	4	5
	Working (boys), sewing (girls)	3	8	3	0
	Music	0	0	0	6
	Miscellaneous	0	4	11	0
	Not stated	2	4	14	12
What is your favorite pastime in winter?	Indoor games	6	0	3	0
	Skating and coasting	81	86	59	83
	Reading	4	0	14	0
	Parties	2	0	2	0
	Music	2	0	4	6
	Working (boys), sewing (girls)	1	0	2	5
	Study	0	3	3	0
	Miscellaneous	1	11	4	0
	Not stated	3	0	11	6
What animal is man's best friend?	Dog	50	32	38	25
	Horse	42	64	43	51
	Not stated	8	4	19	24

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
For what do the following abbreviations stand?					
Dr.	Right	99	100	100	100
	Not stated	1			
A. M.	Right	92	85	90	88
	Wrong	2	4	2	6
	Not stated	5	11	8	6
A. D.	Right	87	92	90	100
	Wrong	7	4	2	
	Not stated	6	4	8	
B. C.	Right	95	96	93	100
	Wrong	2	0	1	
	Not stated	3	4	6	
Inst.	Right	16	17	11	18
	Wrong	59	43	47	16
	Not stated	25	40	42	66
For how many years was Roosevelt President of the United States?	4 years	5	8	11	6
	5 years	2	0	2	6
	6 years	8	20	8	0
	7 years	68	48	46	42
	8 years	15	24	28	46
	Not stated	2	0	5	0

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
Who is Secretary of State?	Right	9	11	8	6
	Wrong	13	32	16	6
	Not stated	78	56	76	88
Who was Frances Willard?	Right	10	20	11	18
	Wrong	11	5	16	12
	Not stated	79	75	73	70
Who was Louisa May Alcott?	Right	62	60	81	76
	Wrong	3	4	3	6
	Not stated	35	36	16	18
Of what nationality was Jesus?	Right	87	76	85	76
	Wrong	2	4	4	0
	Not stated	11	20	11	24
In what year was Pres. McKinley shot?	1899	4	0	2	0
	1900	6	8	8	6
	1901	66	52	49	58
	1902	10	8	15	18
	1903	5	8	3	0
	Not stated	9	24	23	18
How many years is it since Jesus was born?	Below 1909	8	4	7	12
	1909	69	80	66	70
	1912	1	0	1	0
	1913	2	12	1	6
	Over 1913	5	0	5	0
	Not stated	15	4	20	12

TABLE II—*Cont.*

		BOYS		GIRLS	
		City	Country	City	Country
Is one ever justified in telling a falsehood?	Yes	20	36	16	36
	No	79	64	76	46
	Not stated	1	0	8	18
Do you believe that it is morally right for a divorced man or woman to marry again?	Yes	24	28	18	24
	No	71	72	76	70
	Not stated	5	0	6	6
What do you consider the worst crime a person could commit?	Murder	86	88	84	88
	Treason	3	4	1	0
	Stealing	1	0	1	6
	Suicide	2	0	4	0
	Kidnapping	1	0	1	0
	Torture	1	0	2	0
	Lying	2	8	3	0
	Hanging	1	0	1	0
	Not stated	3	0	3	6
In what kind of place do you find the following?					
Violets	Right	93	96	94	85
	Wrong	3	0	3	15
	Not stated	4	4	3	0
Golden-rod	Right	84	84	74	78
	Wrong	5	4	13	22
	Not stated	11	12	13	0

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
In what kind of place do you find the following?					
Buttercups	Right	81	80	73	58
	Wrong	4	8	15	18
	Not stated	15	12	12	24
Gophers	Right	84	92	61	70
	Wrong	5	0	7	24
	Not stated	11	8	32	6
Musk-rats	Right	89	96	57	58
	Wrong	1	0	3	18
	Not stated	10	4	40	24
Rabbits	Right	92	100	75	70
	Wrong	0		0	6
	Not stated	8		25	24
Bass	Right	93	88	22	18
	Wrong	1	4	2	6
	Not stated	6	8	76	76
Bull-heads	Right	90	96	20	12
	Wrong	1	0	2	6
	Not stated	9	4	78	82
Frogs	Right	97	100	77	88
	Wrong	0		0	6
	Not stated	3		23	6

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
In what kind of place do you find the following?					
Brown thrush	Right	60	80	12	28
	Wrong	19	12	28	24
	Not stated	21	8	60	48
Robin	Right	90	100	77	88
	Wrong	0		1	0
	Not stated	10		22	12
Meadow-lark	Right	87	96	78	94
	Wrong	1	0	3	0
	Not stated	12	4	19	6
Woodpecker	Right	91	96	74	100
	Wrong	0	0	0	
	Not stated	9	4	26	
Quail	Right	74	88	25	46
	Wrong	2	0	10	18
	Not stated	24	12	65	36
Can you tell an oak tree from an elm tree?	Yes	97	100	98	82
	No	2		1	18
	Not stated	1		1	0
Can you tell a hard maple from a soft maple?	Yes	75	68	69	52
	No	22	32	27	48
	Not stated	3	0	4	0

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
What is peculiar about the way peanuts grow?	Right	3	8	4	12
	Wrong	62	80	59	42
	Not stated	35	12	37	46
Do you understand how a steam engine works?	Yes	75	64	13	18
	No	22	36	81	82
	Not stated	3	0	6	0
Do you understand how a gasoline engine works?	Yes	66	84	13	18
	No	31	16	79	76
	Not stated	3	0	8	6
How many wheels has an ordinary railroad car?	Four	10	16	51	24
	Six	3	8	9	12
	Eight	79	60	22	30
	Twelve	4	4	1	0
	Over twelve	3	12	2	6
	Not stated	1	0	15	28
How many times does an ordinary revolver shoot without reloading?	Four and below	0	4	16	24
	Five	21	16	8	6
	Six	62	68	19	30
	Seven	12	8	2	0
	Eight	4	4	5	6
	Not stated	1	0	50	34
What is the distance between the rails of a railroad track?	Three feet	10	12	16	6
	Four feet	53	28	24	24
	Four feet 8 in.	2	0	1	0

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
What is the distance between the rails of a railroad track?	Five feet	20	20	13	0
	Six feet	4	0	3	12
	Not stated	11	40	43	58
What is echo?	Reflection of sound	56	24	38	48
	Distant sound	5	12	7	6
	Answer of voice	18	28	2	0
	Hollow space	2	0	3	0
	Miscellaneous	2	4	10	18
	Not stated	17	32	40	28
What causes thunder?	Lightning	47	28	11	24
	Clouds bumping	21	20	19	18
	Electricity	7	8	5	6
	Friction and Heat	6	4	6	0
	Miscellaneous	1	4	7	0
	Not stated	18	36	52	52
What is coal?	Mineral	34	24	18	12
	Rock	12	8	4	18
	Petrified vegetable matter	7	12	4	6
	Decayed vegetable matter	17	16	15	12
	Correct	14	8	3	12
	Not stated	16	32	56	40
What is coke?	Mineral	1	4	2	6
	Rock	1	0	1	6
	Burned coal	9	28	8	18

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
What is coke?	Miscellaneous	0	0	12	6
	Correct	59	36	19	18
	Not stated	30	32	58	46
How often do we have a full moon?	Once a year	1	8	0	6
	Once in 3 months	5	8	7	0
	Every 2 weeks	5	4	1	0
	Once a week	2	0	2	0
	Once a month	47	64	66	70
	Not stated	40	16	24	24
From what is paper made?	Right	95	96	88	89
	Wrong	0	0	0	0
	Not stated	5	4	12	11
From what is leather made?	Right	91	88	79	82
	Wrong	2	0	0	0
	Not stated	7	12	21	18
From what is silk made?	Right	94	92	90	94
	Wrong	0	0	2	0
	Not stated	6	8	8	6
From what do we get wool?	Sheep	96	100	92	100
	Cotton	0	0	1	0
	Not stated	4		7	
From what do we get linen?	Plant	1	0	4	0
	Flax	57	72	76	64

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
From what do we get linen?	Cotton or wool	0	4	1	0
	Not stated	42	24	19	36
From what is rubber made?	Rubber tree	86	76	70	58
	Wrong	2	12	1	12
	Not stated	12	12	29	30
From what is glass made?	Right	58	68	29	54
	Wrong	1	8	4	6
	Not stated	41	24	67	40
From what animal do we get the following?					
Venison	Deer	92	96	90	92
	Miscellaneous	5	0	3	4
	Not stated	3	4	7	4
Veal	Calf	68	88	56	52
	Sheep	17	12	21	20
	Miscellaneous	7	0	10	16
	Not stated	8	0	13	12
Pork	Pig	98	100	96	100
	Not stated	2		4	
Ham	Pig	84	96	72	82
	Cow	9	4	12	12
	Not stated	7	0	16	6

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
Mutton	Sheep	94	96	85	88
	Calf	1	4	1	6
	Deer	0	0	0	6
	Cow	2	0	3	0
	Goat	0	0	2	0
	Not stated	3	0	9	0
From what do we get sugar?	Sugar cane	55	36	63	36
	Sugar beet	4	8	5	12
	Cane and beet	33	52	20	24
	Plants	2	0	3	0
	Corn	1	0	1	6
	Not stated	5	4	8	22
From what do we get vinegar?	Right	74	84	69	82
	Wrong	2	4	0	6
	Not stated	24	12	31	12
When do we use baking powder, and when soda, in making cakes?	Right	2	4	13	18
	Wrong	7	8	4	12
	Not stated	91	88	83	70
Why do we put yeast in bread?	Right	89	96	87	94
	Wrong	0	0	1	0
	Not stated	11	4	12	6
Why is bluing put in the water in rinsing clothes?	Right	52	64	78	70
	Wrong	12	16	4	6
	Not stated	36	20	18	24

TABLE II—*Cont.*

Questions		BOYS		GIRLS	
		City	Country	City	Country
How far is it from this city, where you are writing, to Chicago?	Low estimate	4	0	10	24
	Close estimate	14	20	16	6
	Correct	62	52	49	18
	High	15	28	17	24
	Unreasonably high	1	0	1	6
	Not stated	4	0	7	22
When will the next presidential election occur?	Before 1911	2	0	1	6
	1911	3	0	1	0
	1912	69	72	51	36
	1913	18	20	32	42
	After 1913	0	4	3	12
	Not stated	8	4	12	4
How long does it take to go from Chicago to New York City by train?	Less than 18 hours	20	4	6	24
	18 hours	35	48	10	12
	24 hours	6	12	15	6
	36 hours	0	4	9	12
	48 hours	7	12	12	6
	Not stated	32	20	48	40

This optimistic view of the investigator does not seem to me to be invalidated by the fact that a considerable number of high school children think that veal is obtained from sheep, or by the fact that less than half the city boys questioned, were able to answer correctly the question, "How often do we have a full moon?" Neither should one make too much of the absurd answers that every extensive written examination affords. Perhaps, however, the following are worth putting on record. "Frances Willard was a nurse in the Spanish war; a writer of church songs; a great actor; a singer." "Jesus was an Arabian; a Turk; he was born 4,000 years ago." "Echo is the voice of a fairy that has no body." "Coal is mineral growth rotted for 100 years." "Coke is petrified sponges." "Leather is made from bark." "Glass is made from sand and nitro-glycerine." "Venison is from bear; turkey; possum." "Vinegar is made from cucumbers; from fermented whiskey." "It takes two hours to go from Chicago to New York by train."

The fact that the cities from which the pupils wrote were small cities, and the fact that the number of country children questioned was very limited, will excuse us from emphasizing more than Table II does, the differences between the contents of the minds of urban and rural children. A more important comparison is that between the sexes. The girls show superiority in knowledge of the game of tennis, of Frances Willard, of Louisa May Alcott, of the changes of the moon, of the source of linen, the use of baking powder and bluing, and a few other matters. In the main, however, as far as this list of questions is concerned, the boys are markedly superior. They seem to surpass the girls even in telling where certain flowers are to be found. The girls are naturally deficient in knowledge of machinery. Only a small percentage of city girls know the number of wheels on a railroad car. The girls are also very cautious, failing in a great many cases to commit themselves by a conjecture when their knowledge is not sure. Personally I am inclined to think that a list of questions might be framed that would show in the girls a wealth of working or everyday knowledge that this investigation failed to reveal.

IV. CONTENTS OF THE MINDS OF WHITE AND COLORED SCHOOL-CHILDREN. (a.)[1]

The following investigation was made with the object of comparing the contents of the minds of colored children with those of white children of the same age and sex.

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[1] By Mr. T. A. O'Farrell.

A questionnaire covering a wide range of subjects was submitted to pupils in the fourth, fifth, sixth, seventh, and eighth grades of the public schools in an Illinois city. In these schools the pupils numbered from 4 per cent. to 40 per cent. colored. Of the whites the majority came from American families of the middle class; but in some schools there were quite a number of Germans and Scandinavians.

Each child was handed a paper containing the questions, with spaces for the answers, and was allowed to fill it out without assistance.

Because there is a prevailing opinion among teachers that colored children are precocious in the early grades and that they are not able to keep pace in school with white pupils after the approach of adolescence, I divided them into preadolescent and adolescent groups. In the former were included the papers from the pupils aged 8-11 years inclusive, in the latter those from pupils aged 13-17 years inclusive. The papers from those aged 12 were discarded. In order to make a closer comparison I also made divisions according to sex.

Below in Table I, is a list of the questions and opposite each question is given the per cent. of persons in every group who answered the question correctly. It is evident from the nature of some of the questions that absolute accuracy could not always be expected. But by fixing certain limits, at least an approximation to accuracy was attained.

Table number II gives in percentages the average number of correct answers for the pupils of each group.

Among the white pupils no question was answered correctly by all the members of a group.

One question was answered correctly by all of the pre-adolescent colored girls, and four questions by all of the pre-adolescent colored boys.

In all cases the boys gave a larger per cent. of correct answers than the girls of corresponding groups.

Table II shows that for every age-sex group the white pupils gave a larger per cent. of correct answers than the colored pupils. This excess is 2.1% for the pre-adolescent boys and 8% for the adolescent boys; 7.4% for pre-adolescent girls and 2.6% for adolescent girls. But the entire excess for both pre-adolescent groups is almost the same as the entire excess for both adolescent groups. The results of this investigation seem to indicate that after the approach of adolescence, colored boys compare less favorably with white boys in mental ability, while colored girls compare more favorably with white girls.

The replies showed that one-third or more of these pupils did not know from what animals we get beefsteak, ham, bacon, and mutton, nor from what illuminating gas and printing paper

TABLE I

List of Questions	50 White Girls 8-11 yrs.	19 Col'd Girls 8-11 yrs.	44 White Boys 8-11 yrs.	18 Col'd Boys 8-11 yrs.	50 White Girls 13-17 yrs.	43 Col'd Girls 13-17 yrs.	50 White Boys 13-17 yrs.	45 Col'd Boys 13-14 yrs.
	% of Correct Replies							
Who is the mayor of——?	92.	89.4	95.4	88.8	98.	93.	98.	93.3
Who is Governor of——?	58.	57.8	63.6	61.1	88.	60.5	96.	66.6
Is President Taft a Democrat or a Republican?	92.	78.9	88.6	100.	96.	86.5	96.	97.7
Why do we celebrate the Fourth of July?	48.	21.	54.5	38.8	80.	56.	84.	68.8
——Christmas?	84.	89.4	81.8	83.3	92.	86.5	90.	80.
——Easter?	76.	89.4	54.5	66.6	74.	88.4	68.	68.8
——Labor Day?	2.	15.7	65.9	16.6	20.	23.2	34.	20.
——May 30th?	28.	36.8	40.8	33.3	66.	39.5	64.	46.6
Have you ever caught fish with a hook?	26.	52.6	75.	72.2	44.	53.5	80.	86.6
When in the woods, how can you tell which trees are oak?	50.	31.5	56.8	38.8	44.	60.5	58.	48.8
Have you ever seen corn growing?	78.	89.4	90.9	100.0	72.	86.5	98.	97.7
——wheat?	46.	47.3	75.	44.4	54.	53.5	70.	62.2
——oats?	40.	42.1	84.1	66.6	52.	65.5	80.	64.4
What is wind?	66.	68.4	65.9	61.1	40.	58.1	56.	53.5
What is the distance around the world?	34.	10.5	50.	33.3	32.	28.	44.	33.3
Which is the largest city in the world?	56.	47.3	59.1	50.	74.	56.	78.	82.2
How many miles is your home from Marshall Field's store?	34.	10.5	59.1	44.4	44.	28.	66.	68.8
Name some country from which we get tea?	84.	89.4	93.1	100.	88.	81.4	78.	80.

TABLE I—*Cont.*

List of Questions	50 White Girls 8-11 yrs.	19 Col'd Girls 8-11 yrs.	44 White Boys 8-11 yrs.	18 Col'd Boys 8-11 yrs.	50 White Girls 13-17 yrs.	43 Col'd Girls 13-17 yrs.	50 White Boys 13-17 yrs.	45 Col'd Boys 13-14 yrs.
	% of Correct Replies							
——coffee?	58.	36.8	63.6	33.3	68.	60.5	60.	46.6
——ivory?	26.	15.7	45.4	22.2	48.	37.2	60.	51.1
——rubber?	56.	31.5	52.2	27.7	28.	34.8	50.	42.2
From what animal do we get ham?	60.	47.3	70.4	77.7	82.	83.7	82.	80.
From what animal do we get venison?	32.	15.7	45.4	27.7	58.	44.2	44.	48.8
——beefsteak?	28.	57.8	81.8	72.2	68.	88.4	86.	91.1
——veal?	8.	10.5	20.4	22.2	30.	25.5	22.	22.2
——bacon?	62.	68.4	61.3	66.6	86.	72.1	74.	77.7
——mutton?	46.	26.3	59.1	72.2	70.	76.7	56.	82.2
From what do we make bread?	98.	100.	90.9	100.	98.	95.3	96.	93.3
——butter?	84.	89.4	88.6	77.7	86.	76.7	88.	86.6
——pepper?	16.	21.	38.6	11.1	42.	44.2	42.	46.6
——brick?	44.	15.7	31.8	55.5	66.	46.5	70.	73.3
——silk?	56.	21.	52.2	27.7	78.	69.7	74.	64.4
——vinegar?	32.	26.3	36.4	38.8	48.	67.4	56.	68.8
——brass?	6.	0.	0.	0.	2.	4.6	0.	4.4
——glass?	8.	5.2	25.	5.5	28.	25.5	42.	42.2
——leather?	62.	36.8	70.4	50.	76.	60.5	84.	22.2
——illuminating gas?	22.	26.3	22.7	11.1	34.	28.	44.	24.4
——paper?	40.	63.1	52.2	33.3	44.	58.1	72.	51.1
What is the cost of a good pair of shoes?	88.	68.4	97.7	77.7	92.	83.7	94.	86.6
——piano?	60.	63.1	72.7	77.7	86.	36.5	90.	77.7
——dishpan?	84.	63.1	75.	77.7	82.	76.7	76.	73.3

TABLE I—*Cont.*

List of Questions	50 White Girls 8-11 yrs.	19 Col'd Girls 8-11 yrs.	44 White Boys 8-11 yrs.	18 Col'd Boys 8-11 yrs.	50 White Girls 13-17 yrs.	43 Col'd Girls 13-17 yrs.	50 White Boys 13-17 yrs.	45 Col'd Boys 13-14 yrs.
	% of Correct Replies							
——pair of roller skates?	90.	63.1	95.4	88.8	92.	88.4	94.	82.2
——dining chair?	80.	68.4	68.1	88.8	76.	83.7	90.	55.5
——a pound of nails?	64.	31.5	68.1	61.1	56.	62.7	68.	64.4
What is the cost of a pound of butter?	94.	73.6	90.9	94.4	98.	90.7	98.	88.8
Does the earth move or stand still ?	98.	73.6	93.1	83.3	96.	86.5	92.	93.3
Which is the larger, the earth or the sun?	58.	36.8	59.1	66.6	78.	72.1	72.	73.3
Which is the larger, the earth or the moon?	60.	52.6	45.4	55.5	42.	44.2	42.	40.
Have you ever seen a shooting star?	42.	42.1	59.1	66.6	68.	67.4	58.	86.6
Have you ever seen an eclipse of the sun or of the moon?	44.	42.1	61.3	50.	58.	65.1	76.	71.1
Can you tell which is the north star?	58.	36.8	77.2	50.	72.	56.	70.	64.4
What do we mean when we say the sun rises and sets?	4.	5.2	11.3	16.6	16.	13.9	32.	13.3
What do we mean when we say the moon rises and sets?	38.	21.	27.2	11.1	24.	23.2	20.	44.4
What causes thunder?	24.	15.7	25.	5.5	6.	9.3	10.	2.2
What causes water to flow from a hydrant or a faucet?	20.	52.	36.4	33.3	28.	23.2	50.	35.5
What are the eaves of a house?	20.	15.7	18.1	5.5	46.	30.2	52.	24.4
What is the gable of a house?	10.	0.	9.1	11.1	26.	25.5	38.	15.5

TABLE II

Group	Average % of correct answers.	Group	Average % of correct answers.	Excess % of whites over colored pupils.
Colored boys 8-11 years	51.7%	White Boys	53.8%	2.1%
Colored girls 8-11 years	43.7%	White Girls	51.1%	7.4%
Colored boys 13-17 years	61.1%	White Boys	69.1%	8. %
Colored girls 13-17 years	57.5%	White Girls	60.1%	2.6%

are made. Practically none knew from what pepper, vinegar, glass, and brass are made, the meaning of gable and eaves, of the rising and setting of the moon, or from what animal veal is obtained. Almost none of the Fifth Grade pupils understood sunrise and sunset, and only one-third of the Eighth Grade pupils could explain these phenomena. Not one could give the cause of thunder. Less than one-half knew the distance to Marshall Field's store, or the distance around the world, the source from which ivory and rubber are obtained, or the cost of nails. Fewer than one-fourth could state what causes the flow of water from the hydrant.

An idea that is foreign to one-third of a class is of little service in teaching, and when one-half or more of a class are unfamiliar with a given idea, it is of practically no value in class work. Any instruction which is based on the assumption that such an idea is present in the minds of the pupils must be futile. The inquiry seems to show that these children were quite ignorant of the sources of the most familiar things and of the causes of the most common phenomena, and had very inaccurate ideas of distances.

The estimates as to the circumference of the earth varied from three hundred and sixty miles to thirty-two million miles; of the distance to Marshall Field's store (four and one-half miles) varied from one to twenty-five miles. May 30th is celebrated because it is Arbor Day, the day the President takes his seat in Congress, the day for agricultural meetings. Veal was said to come from lambs, cows, pigs, sheep; venison from fowls and chickens; mutton from the calf. Vinegar is made from pickles, from water and acid, from beets, from rotten apples. The common idea of thunder was that it resulted from the collision of clouds or fogs, a few thought that it was caused by lightning striking the ground. Moonrise was said to be due to the setting of the sun; when the sun rose its brightness was said to hide the moon. The price of a dining room chair varied from $.75 to $44.00; of a piano from $7.00 to $14,000.00, of a pound of nails from $.05 to $.75. One child thought that Labor Day was the day the slaves were set free, another (a negro girl) that this happy event occurred on July 4th.

(b)[2]

One of the Eighth Grade classes "A", to which were submitted the questions in Table I, was in a school in an American, or a German-American neighborhood, the residents of which were as a rule in moderate circumstances. Another Eighth Grade class "B" was from a school in a congested district containing many poor families, about one-third of the population being negroes. The average age in class "A" was 14.1 years, of "B" 14.6 years.

In class "A" the percentage of correct answers to twenty-six of the questions was appreciably higher than for the same questions in class "B." In the answers to four of the questions, class "B" made the better showing. For the remaining twenty-five questions, the answers were about equally good. The two classes had about the same degree of understanding of the meanings of the holidays, only two-thirds of the whole number knowing the meaning of Easter, only one-fourth Labor Day, about one-fourth of class "A" and one-half of class "B" why May 30th is celebrated. More pupils in class "A" than in class "B" knew what wind is. Less than fifty per cent. in either class knew from what ham, bacon, and venison are obtained, from what butter, pepper, brick, silk, glass, leather, gas, and paper are made, and the meaning of sunrise and moonrise. The percentage of correct answers to the last two questions were sunrise, class "A," 33%; class "B," 16%; moonrise, class "A," 12%; class "B," 3%. Class "A" had the better knowledge of distances, and 24% of their number stated what causes water to flow from the hydrant, as against 3% of the other class.

Two Fifth Grade classes were in the same school as the Eighth Grade class "A." One class (C) had been for eight months in charge of a teacher of moderate ability of the drill-master type, one not likely to encourage initiative or a questioning attitude of mind. The other class (D) had been for the same length of time under a good teacher, who encouraged alertness and responsiveness in her pupils. The average age of pupils in class C was 11.5 years, of class D 11.1 years.

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[2] By Mr. C. D. Lowry.

The percentage of correct answers to twenty-one of the questions was appreciably higher in class D than in class C. The reverse was true of the answers to six of the questions. To the remaining questions the answers of the two classes were about equally good. The pupils of class D had better ideas of the holidays and had more experiences with growing things, showed a better appreciation of distances, knew more of the origin of common things, and had a better knowledge of prices.

Comparisons of the answers of the pupils of the Fifth Grade with the answers of the Eighth Grade pupils of the same school showed that the Eighth Grade class answered thirty-one of the questions appreciably better than did the Fifth Grade pupils. In the answers to three of the questions, the Fifth Grade made the better showing. To twenty 'the remaining questions' the answers in the two classes were about equally good. The Eighth Grade pupils knew more about holidays, the sources of common things, and their composition, and were better acquainted with prices and with the causes of natural phenomena.

It is noteworthy that the advantage that this Eighth Grade class showed over the Fifth Grade is about the same that it showed in comparison with the Eighth Grade in the school in the less favored community. Twenty-one of the questions in which it made the better showing were the same in both comparisons.

Mr. Lowry's study seems to indicate a considerable retardation in the children of less favorable social conditions. However, all general conclusions are felt to be premature in a comparatively new field in which we are still gathering data.

BOOK NOTES

The Distribution and Function of Mental Imagery, by GEORGE HERBERT BETTS. New York. Published by Teachers College, Columbia University, 1909. 99 p.

The author announces that his monograph is concerned with four general questions: 1. With what degree of facility and of vividness may the various sorts of imagery be evoked at will? 2. How are the various sorts of imagery correlated with one another? 3. What is the correlation between ability in voluntary imagery and scholarly ability in general? 4. What is the function of spontaneous imagery in our ordinary processes of discriminating, remembering, associating, thinking, interpreting music, enjoying literature, and the like?

Verbal imagery is left wholly out of account, save in a few passing references; and in the collecting of his data, the author relies upon the questionnaire method and the class experiment. His observers were undergraduate students who had had less than a year's experience in psychology, teachers who attended 'Extension' lectures on educational psychology, and a group of 'trained psychologists.' His procedure consisted in presenting to a class a series of questions regarding the presence and the vividness of their voluntary, non-verbal imagery, and in asking them what concrete imagery they employed in accomplishing certain assigned tasks. These tasks consisted in discriminating between certain pitches, brightnesses and spatial extents, in memorizing and recalling groups of letters, in defining concepts, in multiplying numbers, in adducing arguments in defence of a thesis, and the like. The results obtained by these means are summarized and tabulated and a variety of correlations are calculated in a most thorough-going and systematic fashion.

The author finds that capacity for voluntary recall is much more uniformly distributed among the various sorts of imagery than other investigators have reported. A comparison of the proportion of voluntary imagery of the different sorts, which are classified under his superlative degrees of clearness and vividness, shows that the seven sense-modalities vary only between the limits of 50 per cent. and 68 per cent. And this unexpected distribution is supported by the results of a detailed correlation of the various sorts of imagery with one another. It seems to follow from this finding that individual variation in voluntary imagery is of negligible significance, and that the concept of ideational types is a misnomer. Nor do visual images possess the superior vividness which is so often ascribed to them. Indeed, from one of Betts's tables showing the sensory distribution of imagery which reaches the highest degree of vividness, it appears that visual images of maximal clearness are relatively least frequent, while auditory and organic images of maximal clearness are relatively most frequent; a second table, while not wholly in agreement with the first, still shows that visual imagery excels olfactory imagery alone in relative frequency of high degree of vividness. It is found, too, that the correlation between voluntary, concrete imagery and mental efficiency is negative (p. 31), or at best only slightly positive (p. 19).

The author concludes that psychologists have exaggerated the importance of imagery. Most persons possess a wider range and a greater profusion of imagery than they ordinarily make use of in their mental operations. This surplus imagery seems to exist as a vestigial product; it may drop out without in any way interfering with mental efficiency,—indeed its absence frequently leads to a greater efficiency. Memory may function without its intervention; and much of the imagery which accompanies memory is of no advantage in the act of remembering. The appreciation and enjoyment of literature is much less dependent upon imagery than is commonly supposed. There are two occasions upon which imagery tends chiefly to come to consciousness: when our thinking is baffled, and when the situation is such that percepts may be of assistance. But the most efficient and successful thinking, at least in so far as it is logical and abstract, is in most instances accompanied by the least imagery.

This monograph is open to two obvious criticisms: 1. As to method. Most psychologists will raise the objection that an untrained introspector cannot be depended upon to furnish a reliable description of the intimate nature of his complex mental processes; it may be objected, too, that the class experiment and the utter absence of experimental control introduce conditions which may vitiate the introspections of even the trained observer. 2. As to the interpretation of results. The author confined his investigation to concrete imagery; but in his discussion he makes the most sweeping generalizations concerning the function of imagery in general. It is at least conceivable that verbal imagery may play a part in the types of mental functioning which he has chosen for investigation. In the opinion of the reviewer, few, if any, of the author's conclusions regarding the function of imagery are warranted by his data.

Many years ago, Fechner and Galton suggested that concrete images ordinarly play a relatively minor rôle in the higher mental processes of the educated adult. This view has been supported by the investigations of Meumann and of numerous others, and is now the common property of modern psychologists. Whether, in view of Betts's experimental procedure, his monograph is to be regarded as a genuine confirmation of even this modest position is open to serious question. It certainly cannot be regarded as a convincing argument for the doctrine of 'imageless thinking,' which its author advocates.

Clark University. J. W. **Baird.**

China and the Far East. Clark University Lectures, edited by George H. Blakeslee. Thomas Y. Crowell & Co., New York, 1910. 453 p.

This work contains twenty-two lectures by as many different authorities upon the subject, which were given in the historical section of the celebration of the twentieth anniversary of the foundation of Clark University, where each section arranged for a gathering of specialists. The aim was twofold: first, to emphasize the importance of presenting in school and college work the leading features of the development of the Eastern World in general; and second, to stress the importance of modifying historical instruction in colleges and universities, so that it shall include contemporary events, as well as the stock antiquities which make up the usual curricula in this subject. This conference held nineteen sessions and listened to forty-five authorities on the political, social, economic, military, educational and religious aspects of the Eastern situation. As all would have made too bulky a volume, it was decided to exclude the shorter addresses and the material bearing upon the Philippines and India, and to print here only certain of the more formal papers on China, Japan and Korea. A number of the omitted papers will be published in the early numbers of a new journal shortly to be issued at Clark University, which will deal with the problems connected with the attempts to extend Western civilization to peoples less highly developed.

The American Rural School, by HAROLD WALDSTEIN FOGHT. The Macmillan Co., New York, 1910. 361 p.

This work undertakes to set forth "the profound movement to make our American rural life richer and its labors more effective by means of schools adapted to the changing needs of rural society and the demands of modern life." It does not seek out a new basis for school conduct, nor run counter to the established laws of life and growth, but is constructive and attempts to leave behind the artificial interests that have hampered the usefulness of this institution in the past and place it in the midst of natural interest "where it can prepare the youth for sane, wholesome lives on the farm, the normal American life of to-day." The work is evidently prompted by the Roosevelt Conference of experts to conserve our natural resources and to make rural life of more importance. The chapters are: the problem, organization and administration, rural school maintenance, supervision, the teacher and his training, salaries and tenure, buildings and sanitation, indoor furnishing and art, nature study in school grounds, school gardens, elementary agricultural and industrial clubs, manual training in one-room schools, literary and rural communities, hygiene and physical education, consolidation in schools. The book is enriched by a score or two of diagrams of garden plans, types of schoolhouses, grounds, etc.

Among School Gardens, by M. LOUISE GREENE. Charities Publication Committee, New York, 1910. 388 p. (Russell Sage Foundation.)

This a most timely and admirable book which should be in the hands of every teacher who cares anything for this subject. It seeks to tell us what the school gardens are, what are their purposes, where the best are to be found, to give directions so that a novice may start them, to show how even the smallest can be of great benefit to children, and to share with those who are interested the knowledge of the work done in different places. Until lately it was difficult to obtain the right kind of instruction here without leaving home. The following are the chapter heads: the evolution of the school garden; its different kinds; soil fertility; cost of equipment; planting and planting; after planting, what; an interlude, some garden weeds; the school garden in vacation and in term time; some last things. The appendices are devoted to testimonies, how to plant a tree, how to prune, with a hymn for arbor day. The book has perhaps 130 illustrations, and is by far the best we know of in any language upon this subject.

French Secondary Schools, by FREDERICK ERNEST FARRINGTON. Longmans, Green & Co., New York, 1910. 450 p.

For 75 years Germany has been frequented by American scholars and teachers, and especially since the War of '70 has been the cynosure of all eyes. It is believed that French schools and the school system are worthy of far more attention than they receive. The author has devoted a year of residence to this work. He first traces the history of French education, then describes organization, administration of the secondary schools, relations to life, the teaching of classics, modern languages, history, geography, science, gymnastics, drawing, philosophy, public education for girls, grammar schools and in a dozen appendices gives various illustrative documents, copies of diplomas, curricula, chronological tables, programmes of study and examination work, etc. The book is a very valuable, if somewhat voluminous volume. We cannot but regret, however, that the author has paid no attention to the movement toward industrial and commercial education, which is a prominent feature of French secondary schools, but has, for the most part, adhered to the traditional themes.

St. George of Cappadocia in Legend and History, by CORNELIA STEKETEE HULST. David Nutt, London, 1909. 156 p.

The author seeks not to discuss the truth or falsity of the legends about St. George, but to collect the theories, legends, allegories and romances that have grown up around him, which are significant of his influence upon men and nations and the changes of spirit toward him in the course of the centuries. In the Greek church, he was the great martyr and was revered even by Mohammedans. In church legends, he is a saint and Christian hero who slays a dragon and rescues a princess. He was a hero of ballads and plays with and without a religious cast, and, later, he lapsed to a mock heroic butt of Christian mummers. Hence, the author treats first the allegories, then the spread of the veneration for the saint, the orders and institutions due to his influence, the romantic development and how the hero appears in later centuries. The book is interspersed with photographs of great works of art concerning him, and there is an excellent bibliography at the end.

The Autobiography. A critical and comparative study by ANNA ROBESON BURR. Houghton, Mifflin Company, Boston, 1909. 451 p.

This study is based on 260 capital autobiographies and is classified according to the reasons for writing as follows: self-study and science, request of friends, no one else likely to do it or to do it so well, money, pride of birth, study of insanity, to emblazon the power of opium, to revive his Latin, for the use of children or descendants, religious writings, purely apologetic, for amusement or to recall the past, no reason given. The more important chapters are as to autobiographical intention, history, sincerity, the diary and letter, three given architypes, influence and imitation, relations to fiction, nationality and profession, memory, religion, the nervous system of the past, the relation of the sexes, humor, self-esteem, work and aims, genius and character.

General Biology, by JAMES G. NEEDHAM. The Comstock Publishing Co., Ithaca, N. Y., 1910. 542 p.

This book offers a series of practical studies of biological phenomena for the guidance of the general student. It is not a formal text and not at all a treatise; but only a guide designed to assist the student in acquiring for himself some real knowledge of living nature. It differs from other college texts in providing a wider range of themes. The proportion of morphology is reduced and this squares with a tendency that is now very widespread and wholesome. The very conditions of life make an ever-increasing need for, and knowledge of it, and some principles of biology are now necessary for general intelligence. The work is interesting, and not a few of the 280 odd illustrations are also new. Even a few photographs of individual leaders are introduced.

Government by Influence and Other Addresses, by ELMER ELLSWORTH BROWN. Longmans, Green & Co., New York, 1910. 237 p.

These addresses treat of the self-respect of cities, the development of agricultural education, relations of religious and secular education, the culture of righteousness, the schools in the movement for international arbitration, co-operation between the educational associations of different countries, are we inventive in the field of education? needs of the children in the United States, training for motor work, work of women's organizations, distinctive functions of university and normal schools in the preparation of teachers, industrial education as a national interest, the art of the teacher.

Number by Development. A Method of Practical Instruction. *Primary*, by JOHN C. GRAY. J. B. Lippincott & Co., Philadelphia, 1910. 244 p.

Part first treats of the principles applicable to number teaching, origin of the measuring instinct, first measuring ideas, kinds of measuring units, quantitative and qualitative units for developmental work, number as group units, objective work in group unit development, forms of objects for group unit development. The second part outlines the steps in the development process: language, introduction of x, counting by groups, memory tests, "take away," "times," "has how many," counting with tens, reverse counting, "will make" work from ten to eighteen, memory and advanced work, number facts in addition and subtraction from eighteen to one hundred, shall constructive work cease with eighteen? facts of the numbers above eighteen in x and —, partition, improper fractional partition, approximate times and schedules.

Addresses to Teachers, by DOROTHEA BEALE. Longmans, Green & Co., London and New York, 1909. 79 p.

These are heart to heart talks addressed to those of her pupils who intended to teach, and published after her death. The topics are of the most practical character: the disposal of our time; the care of self; health after a retreat; special faults of teachers; indolence in thought; government and guidance of character; individualizing; natural science for teachers; Scripture teaching and lessons on teaching the Old Testament.

Masters of Achievement, edited by Henry W. Ruoff. The Frontier Press Co., Buffalo, N. Y., 1910. 1038 p.

This is a subscription book, one of many of its kind. It is, however, unique in devoting the first 516 pages to a more or less extended biography of one hundred great names, grouped under the heads of literature, fine arts, religion, philosophy, science and discovery, and politics, with two or three score illustrations. The second part contains "four thousand other masters," including contemporaries, with perhaps as many more illustrations.

Child Employing Industries. Proceedings of the Sixth Annual Meeting of the National Child Labor Committee. American Academy of Political and Social Science, Philadelphia, 1910. 274 p. (Supplement to the Annals of the American Academy of Political and Social Science, March, 1910.)

We have here nearly threescore addresses of experts on various aspects of the topic, which make it one of the most interesting and important, as it should be since it is the latest of the discussions of this great topic.

Zeitschrift für Säuglingsschutz. Redigert von PROFESSOR DR. ARTHUR KELLER. Verlag von GEORG STILKE, Berlin.

This new journal issued the first number of its first volume last July with an interesting array of specialists as editors. While it is a special organ of the Emperor Auguste Victoria-House, which was founded to reduce infant mortality in Germany, it really takes a national, if not international, point of view. The editors seek to be at the same time scientific and popular. •They discuss literature and articles upon the broad field and have only occasionally yielded to the tempation to treat topics too learnedly for the practical work of child saving and welfare. The spirit, vigor and intelligence of this new journal reminds us of Mr. Devine's survey, although its purpose is far more special, being restricted to infant welfare.

Dramatic Reader for Grammar Grades, by MARIETTA KNIGHT. American Book Co., New York, 1910. 267 p.

The author has had an experience of ten years in helping boys and girls present scenes from small plays and is satisfied that the dramatic instinct is very strong in children, and that the ordinary school material and work do not satisfy or develop that interest. Children often leave school with artificial and monotonous intonations and emphasis, but this all vanishes when children lose themselves in pretending to be some one else. They then show spontaneity and natural tones. The book consists of over a score of playlets on various themes and from various sources arranged as we understand it, by the author.

Life and Health, by JAMES FREDERICK ROGERS. J. B. Lippincott Co., Philadelphia, 1910. 202 p.

The author deplores that although there never was so much interest in the subject of bodily welfare as now, there never was so much diversity of theory, so many barkers at side-shows, so that the health seeker often travels from one disappointment to another. The first part of the book is a general picture of the body in life and health, while the second deals more explicitly with the problems of hygiene. The work is a valuable and interesting contribution to the subject.

La Vraie Éducation, par PAUL GAULTIER. Librairie Hachette et Cie, Paris, 1910. 281 p.

This work, dedicated to Compayré, is divided into four parts, treating respectively of the education of the body, sensibilities, intelligence and the will. The propositions of the author will not strike Americans as at all radical, but his design is evidently to focus on those points which he regards as of chief importance.

Studies in Melody, by W. VANDYKE BINGHAM. The Psychological Review, Jan., 1910, Vol. XII, No. 3. 88 p.

This is an interesting and valuable study divided into four parts: (1) the melody problem, (2) the phenomena of melodic "relationship," and of melodic trend, (3) effect of melodic stimuli upon muscular movement, (4) suggestions toward a motor theory of melody.

Salary Loan Business in New York City, by CLARENCE W. WASSAM. Submitted in partial fulfillment of the requirements for the degree of doctor of philosophy in the faculty of political science, Columbia University. New York, 1908. 127 p.

Milch und Molkereiprodukte, ihre Eigenschaften, Zusammensetzung und Gewinnung, von PAUL SOMMERFELD. Quelle & Mayer, Leipzig, 1910. 140 p.

Women and the Trades. Pittsburgh, 1907-08, by ELIZABETH BEARDSLEY BUTLER. (Russell Sage Foundation. The Pittsburgh Survey, findings in six volumes, edited by Paul Underwood Kellogg.) New York Charities Publication Committee, 1909. 440 p.

The Elements of English Versification, by JAMES W. BRIGHT and RAYMOND D. MILLER. Ginn & Co., Boston, 1910. 166 p.

John Bunyan's *Grace Abounding*, edited with introduction by Edward C. Baldwin. Ginn & Co., Boston, 1910. 148 p.

Goldsmith's *The Deserted Village.* Gray's *Elegy in a Country Churchyard*, edited with introduction and notes by Louise Pound. Ginn & Co., Boston, n. d. 64 p. (Standard English Classics.)

John the Unafraid, by ANON. A. C. McClurg & Co., Chicago, 1910. 128 p.

The Riddle of Life and Health, by THOMAS BASSETT KEYES. The Tubercle Press Bureau, Chicago, 1910. 81 p.

The Æneid of Virgil, translated into English prose by John Conington. Edited with introduction and notes by Edgar S. Shumway. The Macmillan Company, New York, 1910. 348 p.

The Republic of Cuba in 1909, September. Rambla y Bouza, Habana, 1909. 46 p.

Ein Beitrag zur grammatischen Entwicklung der Kindersprache, von I. A. GHEORGOV. Wilhelm Engelmann, Leipzig, 1909. 432 p.

Reéducation Physique et Psychique, par H. LAVRAND. Bloud & Cie., Paris, 1909. 121 p. (Bibliothèque de psychologie expérimentale et de métapsychie.)

A Primer of Essentials in Grammar and Rhetoric, by MARIETTA KNIGHT. American Book Co., New York, 1905. 64 p.

Stories from European History, by LUCY DALE. With 4 plates in color and 39 other illustrations. Longmans, Green & Co., New York, 1910. 144 p.

Landmarks of British History, by LUCY DALE. With 8 plates in color and 72 other illustrations. Longmans, Green & Co., New York, 1910. 256 p.

Ballon- und Flugmotoren, von A. HAENIG. C. J. E. Volckmann, Rostock, i. M., 1910. 196 p.

Die internationalen Luftschiffe 1910. Ihre Bauart und Eigenschaften nach dem Stande von February, 1910. Nach authentischen Quellenbearbeitet von Neumann, Oberleutnant und Direktor der Luftschiffer-Schule des Deutschen Luftflottenvereins in Friedrichshafen. Mit 52 Abbildungen. 102 p. Gerhard Stalling, Oldenburg, i. Gr. 1910.

A Certain Rich Man, by WILLIAM ALLEN WHITE. New York, The Macmillan Company, 1909. 434 p.

Tlingit Myths and Texts. Recorded by John R. Swanton. Smithsonian Institution, Bureau of American Ethnology, Bulletin 39. Washington, Government Printing Office, 1909. 451 p.

The Martyrdom of Man, by WINWOOD READE. 14th ed. The Truth Seeker Co., New York, n. d. 543 p.

This new edition shows the popularity of this interesting book, which evidently is still maintained. Its four chapters on war, religion, liberty, and intellect, have long been familiar to many readers.

Easy German Stories, by C. E. RIES. Edited by Ernest H. Biermann. New York, American Book Company, 1910. 183 p.

La Petite Princesse, par JEANNE MAIRET. Edited for school use by Edith Healy. New York, American Book Company, 1910. 154 p.

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PSYCHOANALYSIS AND THE UNCONSCIOUS

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Theories of the unconscious in anything like the modern sense of the term date back to Leibnitz, who, in his refutation of the theory of Locke (55 pp. 47-52), basing on the law of continuity, taught that noticeable perceptions arise by degrees from those which are too minute to be observed. There are, he says, changes in the soul of which we are not conscious, for they are too slight or too gradual to become material for perception, "but if any one directs our attention to them immediately after, and makes us notice, for example, some noise which was just heard, we remember it, and are conscious of having had at the time some feeling of it." Also a complex perception like that of the noise of the sea, for example, must be made up of the perceptions of the noises of each individual wave, "since a hundred thousand nothings cannot make something." Such unnoticed perceptions make up a large part of the personality of the individual, and in consequence of them the present is "big with the future and laden with the past." Such "*Petites perceptions*" explain the pre-established harmony of all monads. It is they which make possible differences in perception which produce "a relation between the perception of colors, heat and other sensible qualities and between the motions in bodies which correspond to them." It is, finally, such imperceptibles which, unknown to us, determine our wills.

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Since the time of Leibnitz, theories of the unconscious have been reached from three different points of view; from the metaphysical, from the standpoint of normal psychology, and from the point of view of those who deal for the most part with abnormal phenomena. With the first of these, the metaphysical, culminating in the erection of the unconscious into an absolute principle, comprehending both the organic and the inorganic worlds, in the system of Hartmann (35 a), we are not here concerned; our interest is rather in the theories propounded by the last two groups.

And, first, the question of the unconscious as it has appeared to the psychologist.

Herbart (36), basing his psychology on the conflict of concepts, considered that concepts below the threshold of consciousness are kept out of the conscious field because of the inhibitive influence of other concepts. In the unconscious they retain their form and structure, and, on the removal of the inhibitions, arise once more into consciousness. The submergence and return of the concepts is dependent on a mathematical series of relations. While the concepts never suffice to inhibit each other completely, a group of two or more may submerge a single antagonistic concept. This play of concepts in a mind, which is devoid of all innate principles save a striving for its self-preservation, is the nodal point of the Herbartian psychology. Feeling and emotion are for Herbart but results of the friction caused by the interaction of concepts. Here we have in a sense, in the doctrine of the persistence of concepts out of consciousness, their struggle to enter its field, their mutual inhibitions and helps, and the quantitive, energetic doctrine of feeling, a point of view which is in its essentials very like the Freudian theory of the psyche, which we shall later discuss at length; here again we find concepts persisting unchanged out of consciousness, striving up into consciousness and kept down by other systems of concepts; here again the feeling-tone of the concepts appears as a dynamic, essentially a quantity; both systems deal with the soul as a problem in mechanics.

Carpenter (12) concluded that changes of which we are unconscious, but of whose results we may subsequently become conscious, may go on under the threshold of consciousness. For purposes of convenience, he prefers to express this "unconscious cerebration" in physiological terms, as a function of the nervous system. He sees in phenomena like the spontaneous occurrence of names vainly sought for, the finding of mislaid objects, spiritualistic phenomena, mediate association, the unconscious maturing of judgments, the often apparently inspirational nature of inventions and discoveries, the development of emotional states without their recognition at the time, and the like, instances of this sort of activity.

Lipps (56, pp. 125-161) assumes that consciousness is sharply delimited, with a definite threshold. On the basis of unnoted elements in perceptual fusion, the phenomena, for instance, of the determination of clang-tint by unnoted overtones, movements of visual accommodation, habitual bodily movements without conscious direction, dreams, usual noises which are noted on their cessation but unnoted while in operation, the impossibility of accounting for the rise of ideas, judgments, and the like, in merely conscious terms, he concludes that every stimulus which under the favorable conditions of a heightened degree of attention is capable of reaching consciousness, is, under all conditions, capable of setting up activities, though not conscious ones, in the psyche. There are for him unconscious processes underlying all conscious ones and accompanying them. These he prefers to think of as psychic, since they belong to the same stream as conscious processes, and so pleads for the right to speak of unconscious ideas and sensations.

Wundt (86, v. 3, pp. 324-331) considers that the elements which Lipps calls unconscious are really dimly conscious, Nor can ideas exist unchanged in an unconscious storehouse, as memory images are different from the original experiences. Ideas out of consciousness do not exist, but only functional dispositions. Since such dispositions are not psychical, we must give up all hope of ever learning the nature of such traces, and bound our psychology by consciousness, which really means by the inter-connection of psychic processes. The greater part of our experiences vanish, leaving no trace; it is only the exceptional experience which is preserved as a disposition and is therefore material which may come again into consciousness. Nor are the phenomena of heredity a proof that definite ideas and feelings are present unconsciously, for what is inherited is merely the organic *Anlage* which permits us to perceive certain sensations and to associate with them certain movements.

Ribot (72, 73) considers that the threshold of consciousness is a definite one, below which ideas disappear abruptly, to be converted into functional dispositions. The subconscious in the static sense comprises habits, memory, and all organized knowledge. Dynamically, it is a matter of cerebral activity, to be physiologically explained. Cases of multiple personality depend for the most part on physiological disturbances; and subconscious activities—in the neural sense—furnish only the materials in part for the new synthesis. Consciousness is superadded to neural processes for the sake of better adaptation.

Münsterberg (63) pointing out that the subconscious is not a fact, but an hypothesis, sees in all facts, normal and abnormal, adduced to support the hypothesis, the same mechanism which "underlies the ordinary processes of memory, attention, etc.; it is not psychical at all, but a physiological brain process." Its activity may be purposive; that is, adapted to the needs of the individual, for it is alone on the physical side that the principle of causality rules: "There is only an indirect causal explanation of psychical phenomena possible in so far as they can be conceived as accompaniments of physiological processes." Consciousness is nothing but the logical relation of its contents, "the psychical phenomena are in consciousness as the physical phenomena are in nature: there cannot be physical phenomena outside of nature," nor psychical outside of consciousness. Alternating personalities are abnormal groupings of psychical experiences, to be explained in terms of increased or decreased inhibition.

Jastrow (42, 43, 44) considers that "the activity of mind, and with it, the scope of psychology, is broader than the account of it obtained from the direct perception of consciousness" (42). But both conscious and subconscious participate with distinctive functions in a common form of mental activity. There is no independent subconscious self. The subconscious he uses both in the sense of the marginal phenomena usually cited and to include activities inferred from their results; the perception of depth, the direction of sound, illusions, dreams, abnormal phenomena, and the like. Any attempt to explain the subconscious he considers should begin with the normal and proceed to the abnormal. Even in multiple personality the common unity of personality is only partially broken down —such phenomena are merely exaggerations of normal distrait states of mind. The lapsing of functions to subconscious levels is to be explained on motives of economy.

Pierce (69) sees no reason to postulate a subconscious storehouse and workshop, to explain facts like automatic writing, crystal gazing, the inspirations of genius, dreams and the like, but prefers to explain them all by cerebral dispositions excited by appropriate means. It is with him a matter of the neural pattern which has "settled and grown into its modes in the absence of—and probably because of the absence of—all conscious effort."

It is inevitable that those who have concerned themselves chiefly with abnormal phenomena should stress the problem somewhat differently.

Myers (64), who really belongs in this latter group, considers that there is an actual subconscious self, "subliminal," possessed of sensations, thought and emotions, which possesses all the characteristics of conscious processes and in addition is wiser, broader, on a higher level, making visible a "longer spectrum," so that by its means is brought into consciousness material from a vast reservoir of universal energy. In conformity with this view he explains dreams, abnormal manifestations, genius, and the possibility of spirit manifestations, as well as the possibility of survival of bodily death.

Here, too, belong the outpourings of the amateur psychologist who, in consideration of a few abnormal phenomena which seem to him passing strange, wastes endless pages in which the subconscious is evoked to explain and defend all sorts of creeds, beliefs, theses, which are incapable of being held by any sane man on any other hypothesis. A survey of these would be fascinating as a psychological problem, but would take us too far afield. We pass on then to those whose daily intercourse in a clinical way with abnormal phenomena has resulted on their part in an attempt at their serious and scientific explanation.

Janet (38, 39, 40, 41) bases his conception of hysteria on the "splitting of consciousness," and the consequent subconscious functioning of groups of ideas or motor series which have become detached from the self. This subconscious is for him a term for a "disease of the personality," which probably, however, has its germ in normal individuals. It is then, with him, merely a clinical term, but subconscious processes when they do exist are so complex and organized that we must suppose that its activity is both physical and psychical.

Sidis (78, 79) sees in the subconscious a second personality, manifesting itself in the phenomena of hypnotism, secondary personality, insanity, and hysteria. This subconscious self is uncritical, its suggestibility varies directly as the directness of the suggestion made to it, instead of inversely, as is the case with the conscious self. Diseases of the personality are to be explained by disaggregation of the neurones, with accompanying psychic loss of unity, and a suggestibility increasing *pari passu*. The functioning of the subconscious is also seen in social phenomena, and its social diseases in crazes and psychic epidemics.

Prince (70) distinguishes the phenomena of dormant consciousness, including memories of past experiences, and the like, which are passive, from "co-conscious ideas," which function in all respects like conscious ones except that the subject is not aware of them. The former he prefers to think of in exclusively physiological terms, proceeding from the standpoint that memory is at bottom a physiological phenomenon. Ideas which make up experiences tend to become organized into a "complex," so that if part of the experience is recalled the whole tends to be. These complexes may relate to subject, to mood, or may be formed by temporal relations. Such complexes play a great rôle in psychoses. The welding together of ideas into complexes is founded on physiological neuron conditions; emotive tone is an especially strong factor in this welding. Complexes may be retained even though beyond the voluntary control of the subject, but under such conditions may manifest themselves in co-conscious activity. The phenomena are here too complex and well co-ordinated to admit of a merely physiological explanation. Co-conscious activity is possible in a temporary way even where there is no formation of complexes, as in the case of perceptions which are not noticed, and the like phenomena, including such as Carpenter (12) calls examples of "unconscious cerebration." There is no subconscious self beyond a conservation of such complexes. These, though beyond conscious recall, may affect bodily and mental reactions, as shown by galvanometer and association-reaction experiments. It is not necessary to infer here, however, as does the Freudian school, that the complex itself determines the reaction without being reproduced in consciousness or co-consciousness, but merely that the stimulus word has itself, in ways now forgotten, acquired an association with the complex to whose discovery it leads, and so has come to possess a common emotive tone. Complexes may "split," as it were; the emotive tone passing over to a few elements of the original complex, while the rest drop out. Many examples, both normal and abnormal, are cited in support of this interpretation.

Bleuler (7) reviews the usual facts for supposing the existence of an unconscious stratum in the soul, and concludes that sensations, ideas, thought processes, impulses, even attention, may be unconscious. In fact, for him unconsciousness of a process is the usual thing, consciousness is merely accessory. Ideas become conscious by becoming associated with the "ego-complex," but suffer no other change. Complexes in the unconscious may function in every way like the ego-complex, except that the subject is not aware of their activities. These unconscious activities really dominate our logical thinking through their affective tone. It is not the intensity of sensations or processes, but the condition of the ego-complex, that determines the becoming conscious of an activity. Changes in the ego-complex, therefore, bring quite different functions into the focus, as is seen in states of revery, dreams, and abnormal phenomena. The conscious is thus to be explained in terms of the unconscious.

With this brief statement of the different views which have been advocated as to the nature of the unconscious or the subconscious, we may now turn to an examination of the most complete theory which has been worked out by those who attempt to explain the normal in terms of the abnormal—that of Freud and his school.

Freud's account of the mechanism of the unconscious is found mainly in the last section of his "*Traumdeutung*" (33, pp. 313-386). For him the unconscious includes three sorts of phenomena; (a) the traces left behind by past experiences (dormant consciousness in the sense of Prince), which are for the moment out of mind but are capable of voluntary recall; (b) processes which are in function and in all respects like conscious processes except that the subject is not aware of them (unconscious cerebration in the sense used by Carpenter, and including also apparently such normal facts as are mentioned by Lipps, Jastrow and others as examples of subconscious activity—processes of fusion resulting in perceptions and the like—the "temporary co-conscious" processes of Prince); and (c) complexes which have so far sunk as to be incapable of presentation at will to consciousness (Prince's complexes which cannot voluntarily be recalled, Janet's subconcious activities).

The first two classes of facts, the conservation of memory traces and the inferred activities which have evidently been like conscious activities except in that they lack the quality of awareness, he includes under the term "foreconscious" (*Vorbewusste*). In the stratum of the foreconscious go on the greater part of our thought processes; the becoming conscious of a process is the exception and not the rule. But there are also conserved in the unconscious complexes which in their very nature are foreign to our usual modes of thought or to our present moral nature. Such complexes are *persona non grata* for consciousness, they are *bewusstseinsunfähig*, and hence sink beyond voluntary recall. They are, however, not destroyed, and are ready to crop out again on proper provocation. For the habitat of such complexes Freud uses the term "unconscious" proper (*Unbewusste*). In order to avoid confusion we shall, following a suggested translation, speak of this stratum of the psyche as the "preconscious."

So far there is nothing new in the theory save terminology, and the assumption of two strata in the unconscious instead of one. The importance of the complex which cannot be recalled for the formation of neuroses has long been recognized. We may perhaps sum up as follows, Freud's contribution to the subject. First, he has given a new method, that of psychoanalysis, for the detection of such complexes; for the method in the present ramifications and technique is essentially Freud's, though he himself ascribes its origin to Breuer (32). Second, he has postulated a mechanism to account for the whole range of psychological functions, both normal and abnormal; third, he has attempted to show that processes in consciousness are mere symbols of deeper complexes in the psyche, and to prove his assertion by taking the specific concept and showing just what changes and distortions it may be compelled to undergo before it becomes material for consciousness. Fourth, he has laid a stress hitherto absent on the importance of sex in its wide sense as a factor, not only in neuroses but normal life, even in those pre-adolescent years in which its very existence has often been doubted, and, finally, he and his disciples have gone far beyond any one else who has approached the problem from the standpoint of the unconscious in giving a certain pragmatic sanction to this system by showing how its results apply to a whole range of both normal and abnormal phenomena, individual and social.

The way to the discovery of complexes beyond conscious recall is, as we have said, by the method of psychoanalysis. This essentially consists in the interpretation of symptoms, lapses, free-rising ideas, dreams and the like, by following back the train of free associations suggested by the act or thought, without any criticism as to the triviality or absurdity of the links which present themselves. In this way we finally hit, after interpretation on the part of the operator, on the complexes which have determined the act or thought which seems absurd and out of all proportion to the situation. This of course is only the form of analysis; the technique has developed into a very complex system. We find in all such cases that the complex which is beyond conscious recall has manifested itself in consciousness, not directly, but in indirect ways and by a sort of symbolism to be later discussed. But why is it that the forgotten complex is able to get out into consciousness in this circuitous way, when it cannot be directly presented as a memory? Evidently, concludes Freud, it is because it is being inhibited, repressed (*verdrängt*) by something whose power it can escape only in this way. This leads him to postulate in the psyche two systems of energy, the conflict of which accounts, not only for the phenomena of neuroses, but for a wide range of normal phenomena as well. There is first, a primary tendency, which aims at the discharge of accumulated energy by a sort of blind impulse to avoid pain and seek pleasure. Furthermore, this energy does not tend to discharge through motor channels, but seeks to arrive at the desired pleasure by presenting it to consciousness in a sensory way as strongly as possible; so that it may possibly reach the level of an hallucination. The mechanism of this system is thus regulated exclusively by the moment toward pleasure and away from pain. This machinery is first in development in the individual. Childhood shows us the same blind striving for momentary pleasure that we must think of as characteristic of this system. Now this vivification of sensory images to an hallucinatory value is reached by the method of regression, that is, by the decomposition of the experience by a sort of retrograde movement of the psychic machinery into the raw sensory material of which it is made up. It is the same process that we see when we break up an experience into memory images, except that in the preconscious the regression is much more thorough, and is accomplished by the use of by-paths of symbolism, compromise ideas, condensation—in fact, by any sort of process that will tend to "dramatise" the complex. In a word, the preconscious stratum is set in activity by a wish, that is, by a blind euphoric striving, and tends to realize that wish by regressive methods which tend to raise the appropriate sensory images to the level of hallucinations.

But as the organism develops, another system, that of the foreconscious, is gradually built up. This system is quite different. It seeks satisfaction, not in sensory ways, but in motor discharges, which shall realize a situation in ways teleologically better fitted to the organism and more economical of its energy. So long as the situation to which adjustment has to be made is simple, the process functions automatically, in a reflex way, but as soon as a certain degree of complexity arises and adjustment becomes more and more difficult, we have consideration, the arousal to a certain extent of memory images and the like, that is, thought processes develop as a surrogate of activity. But this system, though it may arouse memory images, does so in a different way from the preconscious. The latter has expended its energy only in arousing pleasant images and disregarding the unpleasant in a way which Freud compared to the tactics of the ostrich.

It is evident, however, that if complete adjustment to a situation is to be made, unpleasant as well as pleasant experiences must be regarded, and hence the foreconscious takes account of both sorts. But, on the other hand, an idea which would bring too great a degree of unpleasantness would interfere with action, and hence such exceedingly unpleasant ideas are kept out of the foreconscious system—they are repressed. Freud says (33, p. 373), "Let us keep in mind—it is the key to the repression-theory—that the second system [the foreconscious] can only innervate an idea when it is in a position to inhibit the development of displeasure resulting from it." The foreconscious acts like a "censor" on the preconscious ideas.

Thus it is the foreconscious which is the usual organ of our thought processes. Trains of thought which by virtue of being attended to have been for a time in consciousness and for one reason or another are broken off, may continue to work out in the foreconscious, and many trains of thought go on there which never come into consciousness at all. The functioning of the system is logical, normal, in opposition to the regressive activity of the preconscious. The foreconscious and the preconscious are the real psyche, "in its inner nature as unknown to us as the reality of the outer world and given us just as incompletely by the data of consciousness as the outer world through the data of our sense organs." (pp. 380-381.) In fact, this is just what consciousness is, a psychic sense-organ. Like all other sense-organs, it has been developed to perceive only one sort of stimulus, that of psychic quality. And its function is exactly that of a sense organ; what becomes material for consciousness is, in the same way as what becomes material for a sense-organ, in condition to regulate the reaction of the organism through the application of attention. There is thus nothing in consciousness save what is qualitatively toned—apparently with pleasure or displeasure. But in a sort of secondary way consciousness has become an organ for a portion of our thought processes, in so far as language has come itself to be emotively toned through association. Thinking, however, developed and still runs the most of its course on the foreconscious level, as we have seen. The utility of consciousness is that of a sense organ, in that stimuli which are focal for it have an advantage in determining reactions.

This, then, is the explanation of why preconscious ideas come so indirectly into consciousness; they undergo the repression, the inhibition, of the logical foreconscious system—an inhibition which Freud represents by the figure of a censor admitting to the foreconscious system only those preconscious ideas which by judicious expurgation have been made acceptable.

But now how is all this accomplished? We must look at the soul dynamically, thinks Freud, as possessed of a certain amount of energy "spread over the ideas as an electric charge over the surface of bodies" (23). This energy, which Freud seems to think is a relatively constant quantity for the individual, is the dynamic force which produces all psychic phenomena. Ideas or complexes which possess a high amount of this energy are in a condition to press through and become material for the perception of consciousness. The energy is essentially centrifugal, tending to discharge; in the preconscious system, along the paths of regression, and in the foreconscious, in motor activities and their surrogates. It is none other, apparently, than what we call, in a conscious idea, its feeling-tone. Essentially, however, it is a quantity, but consciousness translates this quantity into the qualities of pleasure and displeasure, in the same way, for example, that differing ether vibrations are translated into qualitatively differing colors. Discharge of the energy means pleasure, its accumulation and tension are interpreted as pain. A complex in the preconscious, then, will be possessed of a certain amount of this energy, and will tend to discharge it, but the foreconscious will inhibit this discharge, which will only succeed when the energy undergoes, by the laws of association, a transfer (*Uberträgung*) to ideas which symbolically represent the complex, and yet which do not lead to the setting free of the displeasure which would be caused by the idea itself. The whole operation of the psyche, then, reduces to a matter of energy relations, and the becoming conscious of an idea is a result of the possession of a certain amount of this psychic energy. We must think of the preconscious as a limbo of forgotten complexes, constantly striving, by virtue of one system of energy, to press up into consciousness, and constantly being inhibited by other systems.

Now it is evident that these complexes are for the most part the result of experiences that at one period of the development of the individual were pleasurable—results of the blind striving of the organism for pleasure—but the energy relations of the psyche have so shifted with growth that now, if these became conscious, they would cause intense pain.

We are, all of us, products of a long mental and moral development during which many tendencies, impulses, strivings, pleasures, have been outgrown and left behind. The child is egoistic, self-centered, demanding gratification for his impulses at any cost. He is, as the modern researches of child study have shown him to us, non-moral, with no sure perception of the boundaries between good and evil, or between reality and imagination. The Freudian school have added to this picture of the child two other elements; they have shown that the child has a strong sex life of his own, and that his relations to the members of his own family are other than those of pastoral fancy.

This sex life of the child is a very different thing from that of adolescent years, but it is none the less strong. Its main characteristics are the relative independence of the different instincts which go to make it up, and the fact that sex-satisfaction is found on the body of the child. (22, 25, 32.) Sexual pleasure may be produced by thumb-sucking, by stimulation of the excretory regions through retention, by masturbation, by spanking,—as in the classic case of Rousseau—in short, most dermal stimulation would seem to have a sexual significance for the child. Also we must reckon with the childish pleasure in nudity, possibly with his love of cruelty that may be almost sadistic in expression, or with masochistic love of submission.

Not only is there this sex life, but when it does begin to externalize and choose objects apart from the body of the child, it finds these first in the person of the parents, and dominantly in the parent of the opposite sex. The Œdipus myth, in which Œdipus kills his father and marries his mother, is quoted by Freud (33, p. 186-7), as darkly symbolizing this period in the life of the child. The child's feelings toward his parent are of course not consciously sexual, nor does he often consciously desire the death of the other parent. But of course for the child death is but a departure; he has no conception of its real significance. And the feeling of enmity toward the parent of the opposite sex is quite capable, in the loose and illogical ways of childish thought, of existing along with the love for the parents that finds expression in making them the source of all power and authority, to be boasted about to other children. But as the child grows, he finds (71) that the parents of others are in some ways superior, and there sets in a process of gradual emancipation from the control of the parents, painful, yet necessary.

It would seem that in neurotics this process of emancipation from parental influence is harder and is less perfectly completed than with normal subjects, as Jung (50) has shown. Abraham (1) has even ventured the hypothesis that the intermarriage of relatives which is so often found where a neurotic strain is present is the result, and not the cause, of the neuropathic diathesis.

The feelings of the child toward his new-born brothers and sisters have also been misunderstood. Examination of both normal children and neurotics shows that there is jealousy of these new arrivals, and wishes for their death—that is, for their disappearance. (22, 25, 29, 32, 48.)

The boy Hans, the story of whose analysis is told by Freud, (25) did not want a sister, and was jealous of her after birth. The girl Anna, described by Jung (48), showed the same tendency. "On the evening before the childbirth," he says, . . .

"the child was in her father's room. He took her on his knee and said: 'Tell me, what would you say if you should get a little brother to-night?' 'I would kill it,' was the prompt answer." And with the birth of a new child in the family begins the scientific quest on the part of the child for the answer to the riddle of birth, leading, as both Jung in the above article and Freud (29) have shown, to all sorts of infantile sex-theories, some of which strongly resemble the content of old myths.

Now all these results only show how different is the type of adult thought from that of the child. Egoism, autoerotic sex tendencies, the direction of the libido toward the parents and the feeling of their absolute authority, jealousy of the other members of the family, all these must be overcome, and in the average case they soon are. So different are our mature modes of thinking that those of the child are forgotten, and our memories of the first few years of life are few and scattering. Most of us, if asked if we ever had such feelings and impulses as those enumerated above, would indignantly deny it, so completely have they passed out of consciousness. But now the energy of these old modes of thought, the strivings of these impulses, must be accounted for. Usually, the energy used up by the child in these prehistoric complexes is diverted to other channels, it becomes intellectual curiosity, art—"the somatic resonance of art is sex," as Scott (76) puts it. In short, the energy diverted from the old sex complexes becomes the motive power that enables the transition to adult methods of thought to be successfully carried through; it has undergone a process of "sublimation." But in the neurotic, so much of the energy is not sublimated; the old complexes, which in the most normal of us still retain some of their former power, are with them so strong as to constantly threaten to break through again. The foreconscious, while it inhibits these activities as such, is not able to stop their presentation in indirect ways. A brief consideration of the Freudian point of view in the abnormal field will show the working of the mechanism in question.

Abnormal. The psychoneuroses furnish us good illustrations of the struggle between preconscious and foreconscious and the resulting changes in complexes which are presented to consciousness. Freud would make such diseases due entirely to the activity of the sex impulses of the infantile kind described above (30a), as is well known. Experiences in later life may occur which permit of being brought into association with these early childhood impulses and raised to a higher power by their energy. These experiences, being for the most part of an unpleasant or shameful nature, the patient attempts to repress. Since they are associated with early sex activities, it will depend entirely on how much energy these latter, which still exist in the preconscious layer of the soul, still possess, whether the repression is successful. If much of the energy of the infantile sex life has been sublimated, the later experiences cannot have their affective tone sufficiently strengthened to cause any injury. But if the sublimation has been less successful, and the infantile complexes are still possessed of abundant energy, the preconscious complex and the banal experience are in condition to form a strong union, which the foreconscious strives to inhibit. If this inhibition is not entirely successful we get the symptoms of a neurosis, whose cause is thus always in childhood, while its occasion may be an event in later life (24). From this point of view it is that we may speak of a neurosis as a "regression" to the expression of an earlier form of sexual activity. But one thing further—the repressive forces are still so strong that the old impulses and the newer situations, even in their unholy alliance, cannot come to consciousness as such, but are obliged to make use of what seem illogical and indirect modes of presentation, so that the neurotic symptom is in a sense a compromise between two tendencies: that of expression and that of inhibition.

The first and most general of these modes of compromise presentation is that of symbolism. In fact, there is a sense in which every hysterical symptom may be considered a symbolic expression of a repressed traumatic experience, which has itself dropped from consciousness, been forgotten, as we say. A patient whom Freud calls Caëcilie (27) was troubled with neuralgic pains of hysterical origin, which really went back to a situation which she felt "like a slap in the face." Another of his patients was afflicted with severe pains on walking, which analysis shows to express the facts that in a certain family love-affair she could "make no headway" (27). In the Dora case (26), what seemed an attack of appendicitis was really an *Entbindungsphantasie*, nine months after the patient parted from the man she loved, who had quarrelled with her. And the fact that after the attack for some time a new neurotic symptom consisted in dragging one foot, Freud thinks symbolizes that she had—had the phantasy above been real—made a *faux pas*. Binschwanger's Irma (6) saw herself, with floating hair, drowning among the reeds. This really represented in her mind the story of Ophelia, whose rôle she had once learned, and whose tragic story had come unconsciously to her to symbolize her own unhappy life. A girl analyzed by Jung (49) was obsessed by ideas of blood and fire, which were found to have a sexual symbolism and interpretation. In short, the rôle of symbolism here is incalculable.

Another process which is observable in the preconscious is the change of psychic accent (*Verschiebung*). The events and situations which are really the most intensely accentuated of the complex are either not sent up to consciousness at all, or are sent up in peripheral positions, while the center of conscious interest is occupied by some accessory and unimportant situation. Jung (52) gives the case of a cook who became obsessed with the idea that she had greatly sinned in having her teeth extracted in order by means of an artificial set to make herself more attractive to her lover. Here it was found on analysis that the tooth episode, which consciousness reported to be central, was not so, at all, and that the root of the matter was that she had an illegitimate child whose existence she wished to conceal from her lover. The unimportant things in which she wished to please him had come in her mind to stand for the important things.

Besides the *Verschiebung*, there has also been a process of condensation (*Verdichtung*). A single symptom or idea may represent several traumatic situations, or several elements of one. This appears in the famous case of Anna O., where Breuer found no less than seven traumata corresponding to the one symptom of transient deafness (8). In the case reported by Freud of the young man with imperative ideas (28), the obsessing idea that a rat would injure some one dear to him was the condensed representation to consciousness of several scenes dealing both with the patient's father and his fiancée. A symptom which thus represents different elements is said to be "over-determined" (*ueberdeterminiert*). According to the general formula for hysteria, there ought to be at least two determinants for every symptom, one from a childhood impulse and one for the experience of later life brought into association with it. As a matter of fact, there are usually more than two. The possible complexity is well shown in the case of Dora mentioned above. With this patient a nervous cough and hoarseness were found to represent, first, the fact that her mouth and throat had an erogenic significance due to her persistent and long-continued thumb-sucking in infancy then, by a *Verschiebung* from the genital to this other erogenic zone, it represented self-reproach for bad habits into which she had fallen. It was also found to occur when her lover was away and to disappear when he returned, signifying that, were she his wife, she would behave toward him differently than did his actual wife, who fell sick when he came home and got rapidly well as soon as he left again. It also had a further significance which served to identify her with the wife of her lover, whom she suspected of a liason with her own father.

The work of the preconscious is further shown in the change of ideas into their opposites—the representation of an embrace, for example, by a backward-thrown position of the arms (24). Emotions may be reversed, an unconscious wish that something may happen is often represented in consciousness by a fear lest it happen. The young university student who was Freud's patient was tormented by the fear that something might happen to his father, which really was determined by an unconscious wish of the Œdipus type mentioned above. In this way feelings of enmity often express themselves in increased tenderness.

Other results show that in the symptoms the patient may identify himself with one or several people whose situation he imagines to be like his. Binschwanger's Irma mentioned above identified herself with Ophelia as well as with several other people. The girl Dora, one day complaining of a new symptom, a nervous stomach trouble, was through analysis discovered to have identified herself with a relative who had a similar complaint, and between whose case and her own there were parallels that served to identify her with the patient in the mind of the latter. This is closely akin, as Jung has pointed out, to the delusions of insane patients, who say for example, "I am Napoleon," "I am Socrates," having unconsciously identified themselves with the person in question through some trait which they imagine they possess in common (54).

Dreams. In his "*Traumdeutung*" (33) Freud has attempted to show that we find in dreams the same struggle between the opposing systems, with the same compromises which we have described above.

Present theories of dreams tend to ascribe their origin to physical or organic stimuli (86, v. 3, pp. 649-662; 83; 13, pp. 198-200; 82); experimentally, the importance of the external stimulus has been shown by Maury (58), Ladd (54 a) Mourly Vold (60), Miss Calkins (10, 11), Titchener (83) and others. It has been shown that associations in dreams are superficial (57, p. 284; 58; 82), devoid of apperceptive control and tending to run in fixed grooves (86, v. 3, pp. 6496-62; 81, p. 180; 21, ch. 2, 83), that isolated impressions tend to fuse into a whole (18). It has been pointed out that it is usually trivial occurrences of which we dream (15, 65), but that the dreamer may recover in dreams experiences, even of childhood, possibly atavistic (75), long since forgotten (45, 18, 58, 84).

Now the Freudian theory, while admitting the prevalence of the external stimulus and the apparent triviality of the material, considers that we must ask why the dreamer interprets the stimulus as he does, the same stimulus often giving widely different interpretations. Freud furthermore finds that the apparently trivial nature of the material is but a cloak for deeply significant processes. The dream never says what it means. Applying the method of psychoanalysis to dreams he considers that we find exactly the same results as with the symptoms of neurotics; what seems out of all relation falls into a co-ordinated whole. The dream, to put it in Freud's formula, is "the disguised fulfillment of a repressed wish" (33, p. 115). That is, at the bottom of the dream there is in every case a preconscious complex striving to make itself felt. But the inhibition of the psychic censor is too strong for the complex to break through *in propria persona*. As a result the preconscious system is driven to concentrate its energy on ideas which seem relatively harmless, but which really symbolize the complex.

The process is somewhat as follows: a train of thought is broken off during the day as too trivial, foreign, or difficult for further occupation of consciousness. It then sinks into the foreconscious stratum, and there keeps on working for awhile. It may dissipate its energy, but if it is fitted in any way to be brought into associative connection, however loose, with a preconscious complex, the two are linked together. The foreconscious train of thought which has worked itself out without the knowledge of consciousness gives us the "dream-thoughts" (*Traumgedanken*). The energy which vivifies the thoughts and makes them persist instead of coming to an equilibrium is that of the unconscious impulse or wish. The dream thoughts are as it were captured by the preconscious complex, and sink to the preconscious level of the soul. As a result they from this time are subjected to the same processes which are going on in the preconscious, by the way of regression, and themselves can now get into consciousness only indirectly, by evasion of the censor. Now the way in which they accomplish this is to concentrate their energy on a few of the dream thoughts, nodal points, as it were, and send these up to consciousness as representatives for the whole series. It is just those which are the most trivial and harmless on which the repression of the censor will weigh least heavily, and consequently it is these which are chosen; this it is which makes the dream seem so absurd and disconnected. There has been what we may call "dream-work" (*Traumarbeit*) going on, fitting the thoughts for presentation. There is thus a distinction between the *latent dream content*—the dream thoughts, with energy furnished by the unconscious impulse—and the *manifest dream content;* the dream is to be considered as a hieroglyph to be deciphered by the work of psychoanalysis.

The following dream related to the writer shows well the distinction between the manifest and the latent content.

The dream was that a former acquaintance of the dreamer, with whom he had once stood in rather sentimental relations, was to be sent to an insane asylum, and the dreamer was responsible for the condition in question. He was to be arrested, but escaped by clothing himself in an army uniform, and so was able to board a train without detention.

Association with the latter part of the dream gave experiences in which the dreamer had known of a man who escaped arrest by such a procedure. They also brought thoughts of a relative who had served in the army for some time, and about whom the dreamer was worried. The night before he had written a letter expressing concern as to this relative, who did not appear in the manifest content, though the latent content was concerned with him. The first part of the dream led back to a former experience, which led the dreamer to suspect insane tendencies on the part of the former acquaintance, which really led to the breaking of the friendship. Questions further revealed the fact that the wife of the relative in question had at one time been brought to a very neurasthenic condition. The dreamer had also several times expressed the opinion that the wife was a hindrance to his relative. The dream had thus seized the opportunity of identifying her, through the neurasthenic condition, with the former acquaintance, and had found a way of riddance from her. The two persons who appeared in the manifest content, the former acquaintance and the dreamer himself, were thus not at all the persons with whom the dream really concerned itself; the relative in question and his wife.

Evidently the writing of the letter had started a train of associations which went on working themselves out without conscious recognition, until they had succeeded in unifying widely separated experiences, and presenting a chosen few of these; chosen, it will be seen, with a view to concealing the real nature of the dream from consciousness.

The dream had, then, according to the Freudian theory, said something as follows: "The wife of this relative of mine is a hindrance to him, as my former friend would have been to me, had things gone on as they were. Both are alike in their neurotic condition, both belong to complexes of the same emotive tone. Therefore the wife of my relative may become insane, as I have often thought might be the fate of my former friend." Now the wish that the wife of a relative become insane is not one fitted for direct presentation, and it is accordingly sheltered under the more natural and obvious thought that the former friend was insane—an identification made possible by the common qualities of the two.

When we succeed, says Freud, in building up again the full structure of the dream thoughts by psychoanalysis, we find that they have gone on working out in the logical ways characteristic of the foreconscious until they reached a conclusion which made it possible for associations to be set up with a preconscious complex. From that moment—and the process has been going on probably for hours—they become subject to the laws which rule the preconscious; a constant striving to emerge and a turning and twisting to evade the inhibition put upon them by the foreconscious. Now when we trace out these changes we find that exactly the same sort of illogical activity has been going on that we have already seen in the case of neuroses. We find that the dream thoughts (and it must be stressed that these have not been conscious, though their point of departure may have been taken from experiences of the day before the dream) have undergone condensation, displacement, dramatisation, and the rest until they seem an absurd jumble.

To consider first the process of condensation. Only a few of the elements of the dream thoughts are presented in the manifest dream content; these must both be relatively harmless and rich in associations—nodal points in which trains of associations leading out to the complete structure of the dream thoughts may meet. Every element in the manifest content is thus, as every hysterical symptom, "over-determined." The associations may be exceedingly superficial. In a dream of the writer, two persons were condensed into one with the features of A and the manners of B. The association which made possible the fusion was the superficial one that both were engaged to men whose last name happened to be the same. In a dream related by Freud a colleague appeared as his uncle. The fusion here was made possible by the working out by the dream thoughts of the conclusion that the colleague in question was, like the uncle, not a respectable member of society. The condensation process may result in the building of new words, as in dementia præcox. The word "Autodidasker," appearing in one of Freud's dreams, separated on observation into "autor," "autodidakt" and "Lasker-Lasalle." The first part gave associations with an "author" of family acquaintance, and finally led to family cares. "Lasker-Lasalle"—both names of men who met death because of women—led to the name "Alexander," that of a member of the family with whom such a situation might have to do. Jones, in his excellent article on Freud's dream theory (46), mentions the word "Olve" or "Olde" as giving Alva and Van der Velde, both associating themselves with trains of thought having to do with the Netherlands, with which subject the dream was concerned. Ferenczi (19) relates how a composite image made up of a physician and a horse led to childhood experiences with horses, to thoughts of the father, by an unpleasant association, and by a transfer of the same association, to the physician in question. There is in such cases a sort of compromise between the trains of thought, resulting in the production of a *Mittelvorstellung* which may serve to express several at once.

Now turning to displacement and change of accent, we find that ideas which are central in the dream thoughts either do not appeal at all in manifest content or appear on the periphery and as accessories, while the images which occupy the important place in the manifest content are really not important in the dream thought. This is because the important thoughts are of a nature which causes them to be repressed more strongly. In the dream of the insane friend which was related above, the two persons cited in the dream thoughts did not appear directly at all in the manifest content. In a dream of the writer, what was really the central feature in the dream was represented in the manifest content only by a bluish light, like stage moonlight, which led immediately back to the memory of a picture whose description had been incidentally read during the evening, which really symbolized the central thought of the dream. In another dream, the writer was to be shot as an experiment by a sort of cross-bow arrangement complicated by a black box. The box was a camera seen in operation the day before, the bow was determined by a chance reference to William Tell. The two were then fused in the dream, and the apparatus, by far the clearest image of the dream, was, as the only possible interpretation showed, really an accessory part of the dream thoughts, which really dealt with a desire which the writer hopes was far from his conscious thoughts.

The dream thoughts have further undergone changes, by the method of regression, into images which are for the most part visual. There has been a "dramatization," to use Jones's translation of "*Rücksicht auf Darstellbarkeit.*" There may have been abstract thoughts in the dream content, but they must be presented in image terms. It will be remembered that the activity of the preconscious is, on the Freudian theory, through sensory channels. There are of course dreams in which reckoning and logical thought seems to go on, but these activities are merely symbolic of real activities in the dream thoughts. A reckoning of money in a dream quoted by Freud meant really, for example, that the dream thoughts had been busying themselves in calculating the number of days to elapse before a certain event. There is as it were, a sort of sign language, which can here be only touched on. Simultaneity of presentation means that some likeness or contrast—either actual or wished for—exists in the dream thoughts between the objects so presented. Puns are used, as in Freud's dream of a leaky hotel, with rain outside and everything "overflowing" with water, the element in the dream thoughts symbolized in this way was the word "superfluous" (*Ueberflüssig*). The temporal sequence may be reversed, as in the hysterical symptom, or the activity may be represented by its opposite—dreams of entering the water may sometimes be shown to mean coming out of the water—birth dreams. A cause and result sequence may be represented in the dream by one dream followed by another. A further process which the dream undergoes is that of "secondary elaboration" (*Sekundäre Bearbeitung*). This, however, is carried on after the dream has passed the censor and is akin to the process of apperception, by which the dream is given a setting in the mental content, gaps are filled in as in inferences in perception and the like. This is due to the activity of the foreconscious, which, though diminished is still functioning. This activity is shown by the presence of elements in the content which have nothing to do with the dream thoughts, but are inserted as it were to round out the dream.

On the affective side, one often finds dreams dealing with unpleasant situations in which there is no unpleasant emotion, and *vice versa*. But this discrepancy vanishes when we remember that the affect belongs to the latent and not to the manifest content. One of Freud's patients dreamed that her nephew was dead, but felt no sorrow. The dream when analyzed, recalled that on the death of another nephew her lover, from whom she had parted, came to the funeral, and was thus really a wish, not for the death of the nephew, but to see the lover again. Hence of course there was no sorrow in the dream. The affective tone may be changed into its opposite before it can pass the censor, and is usually diminished. Tenderness in the manifest content, for example, may really mean teelings of enmity in the latent content, as in the exaggerated fenderness of hystericals.

Symbolism of all sorts is of course rife in dreams, as the above examples show. A dream of a young man (28) that he saw the girl whom his family wished him to marry with gold pieces for eyes merely meant that, should he marry her, it would be for her money and not for her "*beaux yeux*." The dream may use popular phrases in its symbolism, and generally behave in a fashion that reminds one strongly of flashes of wit of all sorts. This leads Freud elsewhere to found a theory of wit on the same psychic mechanism (34). The symbolic presentation in the dream is well shown in the dream of a student who had some time before been in a somewhat unconventional situation which, while harmless in itself, had been somewhat of a shock to some members of the family. In the evening a letter had been written concerning the situation, in which the student's point of view was defended. In the dream the whole situation was symbolized by the taking of a bath in unconventional surroundings, with a procedure in which the complex was interestingly present in all details in a manner which cannot here be gone into without a violation of confidence. The affair was finally terminated by the discovery of the procedure by the landlady, whose horror the student reflected was due to the fact that she did not have a "university education." What determined the use of the bath as a symbol was in part due to the taking of a bath in the evening.

The childhood moment comes out in dreams as in hysteria. This, on the Freudian theory, is to be expected, since preconscious impulses are so largely those of childhood. This childhood moment is shown for example, in dreaming of dead relatives with feelings of anguish, a dream which goes back to the childhood Œdipus *motif* above mentioned. This dream is a so-called "typical dream," occurring with most people, and, like other typical dreams, is usually subject to the same interpretation. In the same way, dreams of being in public with insufficient clothing go back to the childhood exhibition-impulse. The sexual, indeed, plays a great part in dreams, and has a whole chapter of symbolism of its own, in a way strikingly like that of myth. Indeed, the same sort of interpretation which Freud gives to dreams has been given to myth (2, 71, 74).

It ought of course to follow from the theory of the dream as a wish-fulfillment that dreams of very young children, before repression has begun, are openly the fulfillment of wishes; since the dream mechanism is essentially a wish-fulfilling one. That such is the case Freud has attempted to show by a collection of children's dreams. His data, however, stand much in need of further verification before this question can be settled. De Sanctis (75), who has done the most thorough work with the dreams of children, has unfortunately nothing to say on this point, and it has escaped the attention of other investigators as well.

The difficulty which such a theory of dreams meets in the nightmare and *Angsttraum*, Freud attempts to evade by saying that the censor uses the bodily discomfort which is usually said to be the source of such a dream, by incorporating it into a painful dream with the idea of accounting for it in ways that will, on the whole, tend to preserve sleep rather than to wake the sleeper. This good intent of the censor sometimes miscarries, when the circumstances are unpropitious, and we have the waking that follows an especially painful dream. The dream, in general, thus appears as the preserver of sleep, by serving as a safety-valve for the escape of the energy of repressed complexes. We may, then, unite hysteria and dreams in one general formula. Both are due to a foreconscious train of thought, animated by preconscious impulses and so subject to the laws of the preconscious, undergoing condensation, displacement, and the like, with a view to escaping the censor. In hysteria the complex thus aroused seizes the motor innervation and symptoms arise; in dreams the motor gates are shut and we have instead images rising to the vividness of hallucinations. Both are due to a compromise between opposing wishes of the preconscious and foreconscious; both represent the fulfillment of repressed wishes.

Lapses. In his "*Psychopathologie des Alltagslebens*" (31), Freud attempts to apply the same mechanism to a class of phenomena which we may designate as "Lapses" in the broad sense of the term, including mistakes in speaking, in writing, certain classes of forgetting, absent-minded acts and the like.

Meringer and Mayer (59), Douse (16), Bawden (4), Wells (85), in their discussions of lapses, all see the importance of elements which are unconscious or dimly conscious in their production. The general point of view is that lapses are for the most part due to the interference of two or more elements of thought or action, may be sometimes physiological in mechanism, but for the most part depend on complex conditions of association.

Freud, taking the term lapse in the broad sense, includes in his category phenomena which are not abnormal, which are momentary, and which are recognized as slips when attention is called to them, while the true motive for the act does not lie on the surface. We all, says Freud, are inclined to think that the little things of life are due to chance, while we recognize determinism in its great issues. But every least flitting thought is in reality determined and over-determined, like the hysterical symptom and the dream-image. Consciousness indeed does not account for the determination, which is to be sought for in the unconscious. Superstition is due to the feeling of chance in the psyche which we project into the outer world. Paranoiacs attach attention to trifles, projecting into the mental life of others what is really significant in the patient's own unconscious.

We do not make lapses in the important things, and most people are vexed when lapses are called to their attention. The lover, for example, who should forget an appointment with his sweetheart would be rightly accused of waning affection. Trifles in such a matter are significant, but no more so really than they are in other things. In this, as in all lapses, there is really a conflict between two opposing trains of thought, and the reason why we do not recognize the true nature of the lapse is due to the same activity of the censor that we have seen in dreams and neuroses. Lapses may be, however, of all degrees, from those due to a harmless complex—Freud is not clear whether in every case he holds that the complex is in the preconscious, but apparently he thinks that there may be lapses due to the interference of a foreconscious with a conscious train of thought as well—to those needing careful psychoanalysis before their true nature is revealed. The word or activity which tends to be suppressed or assimilated in the conflict may be either something significant in itself or may stand in associative relation, usually superficially, with some other element which is significant. A distraction or rather a division of the attention is merely the favoring condition of the lapse, but the motive lies deeper.

In cases of misspeaking (*Versprechen*), the emphasis has usually been thrown on disturbing influences within the sentence. Freud, however, inclines to the opinion that the true motive is usually to be sought in the arousal of complexes from without the sentence, which stand in some associative relation with it.

Some of his examples of this point are the following. A woman remarked "I do not know how my uncle is, I see him now only *in flagranti*. She meant *en passant*, but the real remark was equally well justified. He said one day to a patient "*Heute wird es also ernst*," and prolonged the "*ernst*" to "*ernscht*." A little later the patient misspoke—"*Ich clappe zusammen wie ein Tassenmescher—Taschenmesser*." Then, laughingly, *Ja, das ist nur, weil Sie heute ernscht gesagt haben*." But later it was found that the name "Ernst" was of primary significance in the neurosis. Patients sometimes speak of their father as their brother, showing an identification in the hysterical sense discussed above. A case cited by Meringer and Mayer "*Es war mir auf der Schwest . . .* " for "*Brust so schwer*," may be due to a simple condensation, or to the functioning of a "*Schwester-Bruder*" complex. In misreading, in the same way, for "a marriage feast on the Ostsee" Freud read "marriage feast in the Odysee." This was due to the fact that he had been recently occupied with the story of Odysseus and Nausicaa. The writing of a date, substituting "October 20" for the correct September date, was a wish-fulfilling anticipation of the date written.

A university student whose early life had been spent in Japan, but whose native tongue was English, made the following lapse which shows well the interference of a childhood complex. The conversation concerned some work which the student was doing which necessitated sleeping in one of the rooms of the laboratory. Sleep was disturbed, among other things, by the rounds of the night-watchman, and the student remarked: "He comes around early in the morning to unlock the building for the (here a hesitation, and then came the Japanese, and finally the English word) mail-man." Free association gave the image of the Japanese mail-carrier, whose rounds were usually made late, pounding on the door after the family had gone to bed, and shouting "Mail." The disturbance was evidently due to the interference of association from childhood, set up by the common element in the situation, resulting in the substitution of the Japanese for the English word.

A student who had been flattered by the offer of a desirable position was discovered singing "Cover my *exalted* head," etc., apparently without consciousness of the lapse. It is obvious what train of thought was responsible for the substitution.

The same mechanism holds in the forgetting of names and purposes. Of course a name may be forgotten because the neural disposition is weak, but in general it is forgetting and not memory which is the true psychological riddle. The motive of forgetting, Freud thinks, is to be found in painful associations, with which the forgotten experience is allied. In many cases a conscious process has been going on a short time before which has been broken off because it is painful, and now tends to crop out again. When names are forgotten owing to such a disturbance, an *Ersatz* name appears, which stands in associative relation to the suppressed one. Freud, attempting to think of the name of the painter Signorelli, found instead the names Boticelli and Boltraffio, both of which he recognized as wrong. There had taken place a short time before a conversation leading to suppressed thought of death and sexuality, connected with the names Herzegowina and Bosnia. He thinks that, by superficial association the "Her" (Herr) of the former name caused the "Signor" of Signorelli to be suppressed. (The word Herr also appeared in an important sentence in the conversation.) The name Botticelli is then a condensation of "Bosnia" and the unsuppressed "elli," Boltraffio is a fusion of Bosnia and "Trafoi," which latter name had been suggested just before by the repressed theme in question. The forgetting of the name "Nervi" at another time, he thinks due to the intrusion of the professional complex, which, so to speak, guarded him against thoughts of "nerves" outside of business hours. A man forgot the name of a former friend who married the girl with whom he had been in love. Here the motive is obvious. In the same way, we forget more complicated things. Freud, commissioned to get a purse, went through the streets unable to find the shop of which he was in search. On looking it up in the directory, he found that the place he wanted had the same address as the home of a former friend from whom he was estranged. He had unconsciously omitted that street in his wanderings. A mother told him a painful story of her sick son, only to deny sincerely a week later that any such state existed, or had been mentioned.

There are also a class of cases in which the essential part of the experience drops out, leaving only a memory of unessential things (Deckerinnerungen). A case related to the writer was as follows: Several girls had rooms together in the same house. One morning one of them, in a merry mood, was executing a dance in somewhat negligee attire when the landlord appeared on the scene unexpectedly, to the great mortification of the dancer. Some years after, at a reunion of some of the former group, the incident was mentioned. The young lady in question remembered the dance, but had utterly forgotten the state of her attire, and was greatly disturbed when the incident was recalled to mind. Such changes seem particularly prone to affect childhood memories, owing to the nature of childhood experiences mentioned above.

Repressed impulses tend also to betray themselves in symbolic ways by symptomatic acts, as the losing of objects once valued, such as a wedding ring, may symbolize waning affection. Freud clumsily knocked over and broke an inkstand which his sister had suggested that he get rid of, as it did not match the new furnishings of his room. He had refused at the time, but thinks the fact of the breakage later showed that his unconscious processes were more in accord with his sister's wish than was his consciousness. A man mislaid a book given him by his wife, toward whom he had become indifferent, but found it again without difficulty when she had reinstated herself in his good graces by nursing his mother through a severe illness. Freud before the door of a certain patient found himself taking out his latch-key, as though he were before his own door, as a symbol that here he really felt "at home." Symbolic acts may lead, through remorse, to self-injury in symbolic reparation for the wrong done, as in the case of a woman who had been reproached by her husband for her conduct. She went for a drive after a sleepless night, and, as the horse shied slightly, leaped from the carriage and broke her leg. She bore the pain with surprising fortitude. The whole proceeding Freud makes symptomatic of her remorse, working out, of course, by unconscious methods, in somewhat the same spirit which leads men to give gold coins instead of copper to beggars, without conscious intention, but really in a sort of propitiation to fate—an outcropping of the ancient spirit of sacrifice.

To gather these instances together and express them a little more in psychological terms, we seem here to be dealing with a class of phenomena which show a certain lack of normal adjustment in language or in act, motivated by a conflict between two opposing trains of thought. The repressed element crops out by a disturbance of normal activity, but not directly in the typical cases, a fact which is due, says Freud, to the activity of the censor. Since the repressed element is limited in its expression to the disturbance of a train of activity already given, we get the same phenomena which we have found in dreams, condensation (as in names), displacement (as when only the unessential part of an experience is remembered) and a high degree of symbolism. The essential feature is that the repressed experience or train of thought is here, as in the other phenomena studied, of a painful or disturbing nature, or touches a complex significant for the individual. It does not seem from Freud's analyses that he everywhere supposes the activity to go down to the preconscious stratum of the soul, though he implies that this is the case in some instances.

It cannot be said that Freud's discussion adds much to our knowledge of lapses, save to emphasize, as has already been done by the American investigators, the very complex trains of thought which may result in a lapse. His discussion adds practically nothing to his argument for the two unconscious strata in the psyche. What it does serves to show, perhaps, is the folly of trusting to introspection alone in determining the motivation of our acts.

Such are the main classes of phenomena—neuroses, dreams, and lapses—on what Freud bases his theory of the psyche. We need not here deal with the application of the theory, to wit (34), which is one of its weakest points, or to literature (2, 33 a, 71, 74), which is one of its most promising, beyond the statement that he finds essentially the same sort of processes in the jest and in the folksoul; the myth is very like a dream and to be interpreted by the same rubrics. The whole domain of his findings in the domain of sex we must also leave here untouched, except for the brief note above.

Critical. In what has been written above, the attempt has been made to consider as concretely as possible the nature of the evidence on which Freud's theory of the stratified psyche is based. In order to make the presentation as sympathetic as possible, a number of corroborative experiences from other sources have been introduced. We have, then, on the basis of cases like those given above, a theory of the psyche which supposes three—or really two, for the foreconscious and conscious are much alike in essentials—systems of energy in the soul, each of which tends to act in a different way. The lowest, the preconscious, deals with its material in a very different way from the foreconscious, and we must therefore suppose a sharp line of demarcation between processes going on under the influence of the energy of the foreconscious and those which are under preconscious influence. The motive force is, as we have seen, a certain quantum of psychic energy, coming to consciousness as pleasure and pain, pain when tension is too great, and pleasure when discharge is made possible. And the essential reason why processes in the preconscious are submitted to the sort of activity which we have seen is that only in that way can they be taken up into the activity of the foreconscious and so attain to that discharge which means pleasure; for the foreconscious can only incorporate an idea in its system when the pain aroused by it is not too strong to interfere with activity. Freud thinks of the phenomena of condensation, displacement, the formation of compromise ideas, superficial and symbolic association, over determination, and the like, as processes, which, though abnormal on the conscious level, are perfectly normal modes of functioning for the preconscious stratum, and which are due both to the inherent tendency of the preconscious system of energy to seek pleasure by sensory gratification and to avoid pain, and to the fact that such processes find a teleological justification in that in this way the censor can be avoided.

Now the psychologist, in his criticism of such a theory, must start from the normal, conscious process, instead of from the abnormal, and he ought to seek to explain just so far as is possible, all manifestations of the sort given above in terms of normal conscious processes. Only where such an explanation breaks down will he be justified in going to the field of the abnormal and the "unconscious" for his explanation. Freud has, of course, begun at the other end of the problem, and has explained the normal in terms of the abnormal. Let us, on the other hand, take our point of departure from generally admitted psychological facts.

It is common knowledge that there are stimuli which are too slight to reach consciousness, but which may nevertheless set up neural excitations, and may emerge later under proper conditions. Of such a nature is the "memory after-image," as when, to use an oft-quoted example, one is absorbed in work and does not hear the striking of the hour, but is able later to count the strokes after they have ceased. Such also are the phenomena seen in crystal gazing, when an image which was not consciously seen emerges later in the crystal. But there are many stimuli which never reach consciousness, but which nevertheless set up neural excitation, as is shown by the fact that stimuli may summate and finally break through to consciousness. This of course shows that excitation processes set up do not at once cease, but require a certain time to die down again to the zero-point. Memory images, when revived, may be quite different from the original experience, not only in the dropping of details, but in their distortion, showing that extra-conscious modification in the neural dispositions underlying them has taken place. Pawlow (58 a) has shown that complex processes of organization may take place without the mediation of consciousness, but in a purely physiological sense, as shown by the fact that the flow of saliva in dogs could be made different, not only as it naturally was, for different stimuli, but for objects associated with those stimuli which had themselves no food value. In the case of the interpretation of perceptions and the like it can of course always be argued that a great part of the fusional processes do not persist subconsciously, but have dropped out altogether, so that we get in consciousness the result of practically all the activity which is set up, without the necessity of supposing unconscious connecting links between stimulus and interpretation. But there are of course many sorts of phenomena, like those mentioned above, which do not admit of such an interpretation.

And, to look for a moment at the other end of the series, there is plenty of evidence that processes which have been in consciousness and have dropped below the threshold, do not at once cease their activity.

Müller and Pilzecker (61) have shown that in the learning of a series of syllables, if during the intervals between repetitions the subject is occupied by some task requiring close attention, less is gained, as shown by the next repetition, than in case less mental energy is used; the stimuli, though they have been dropped from consciousness, are undergoing changes and organizations that require not only time but a certain amount of energy if the process is to be carried through. This excitation may last so long, or perhaps rather may be so easily renewed, that the syllables learned tend to rise spontaneously into consciousness some time later. Ebert and Meumann (17) have also found that a certain time element is necessary for the setting of associations. The studies of Peillaube (68) and Burnham (9) of the phenomena of retroactive amnesia show that it is the events occurring just before the shock which are forgotten, as they have had no time to form associative connections. The everyday experience of finding that a name is forgotten, and, when attention is turned away, having it come to consciousness, must also be interpreted from this point of view. Indeed, if, as Claparède (13) thinks, association is absolutely dependent on subjective simultaneity, it is impossible to account for the formation of a great part of our associations on any other ground than that of supposing such continued activity under the threshold, as Offner (66, p. 23) has pointed out.

If, furthermore, we accept the doctrine of psychic determinism, we are forced to the conclusion that a great part of our associative activity goes on under the threshold of consciousness, for the series which we get in consciousness show themselves to be full of gaps and apparently determined often by mere chance.

Now there are at least three lines of evidence which seem to point to the fact of determinism of psychic processes. The first of these is to be found in the experiments of the Zürich school. Jung and Riklin (51) experimented with associations arising in normal subjects when asked to give the first word suggested by a stimulus word. Under such conditions one might expect free-rising ideas, for the subject is apparently unhampered in his choice. But the results of the experimen give a strong presumption that such is not the case. The type of the reaction word given was found to be dependent on degree of education, sex, attention, individual peculiarities, and especially to stand in relation to the complexes of the subject. Even the grammatical form of the response was found to vary with the individual, and to be fairly constant. Jung's further experiments with neurotics (53) showed that the stimulus word was especially prone to call up a word which related to a complex by which the individual was obsessed. The experiments of Fraülein Fürst (35) have further shown that related persons, and especially those living in family relations, show in their reactions a greater degree of similarity than unrelated, and that families whose members habitually live in "the same circle of ideas" show almost identical reactions. The reaction to a stimulus word surely seems chance enough, and yet we see how many factors may determine it.

Other testimony to the fact of psychic determinism is borne by the existence of the phenomena of mediate association. Such are cases in which the idea or word suggested seems out of all relation to the stimulus, and yet the subject is able by a little thought to supply the missing links of association.

Such associations have been investigated by Aschaffenburg (3) and other experimenters with the word-reaction method, and by other methods by Scripture (77), whose experiments, however, when carried further by Münsterburg

(62) Howe (37) and Cordes (14) gave negative results. Flournoy (20) sees in them the cause of colored bearing and similar phenomena. Wundt (87) thinks that all links in mediate associations are dimly conscious; but the weight of evidence seems to point to the fact that the links may drop below the threshold in many cases.

A third line of evidence for determinism is offered by all the work on lapses, both that of Freud and others, mentioned above. All three lines of evidence go to show that the conditions which determine a reaction or idea may be vastly more complex than consciousness reports. We are not concerned here so much with the question of whether this determinism is absolute, or whether conditions of central nutrition or blood supply may occasionally cause a break in the plexus of associations, as Sollier (80) and Claparède (13) would have us believe. Our point is that many of the determinants of most, if not of all, reactions, must be sought for below the threshold of consciousness, which probably never reports a situation fully and adequately.

Such is the nature of the evidence—not to mention here other phenomena cited by the authors mentioned at the beginning of this article—for holding that below consciousness there is a vast field in which activity may go on, which, if it were accompanied by the quality of awareness, we should surely call psychic. It is possible without any modification of this position to see in such activity only a matter of neural mechanisms, and to restrict the term "psychic" to a matter of awareness; in any case the evidence points to the fact that this region below consciousness is a dynamic reality, larger and even more important than consciousness. There is thus between a degree of excitation which means admittance to consciousness on the one hand, and complete lack of excitation on the other, a median ground, of vast extent, which is beyond the domain of introspection. Beyond the lower end of the spectrum there are vibrations which do not stimulate the eye, and which may, however, be detected by appropriate means. It is the same here; activities may go on in the infra-conscious region which are not sufficiently intense to enter consciousness, and which, however, may be very complicated and important.

The fact of the existence of this region, concerned either in neural or psychic terms, will hardly be disputed; debate rather centres around the question of its significance. Too often the facts brought forward in support of a theory of the unconscious have been those only met with in exceptional cases; let this serve as apology for reviewing, as has been done, some of the facts which show the unconscious at its everyday work, which make a little more evident the great part which it plays in all our affairs.

To take one further step: must we, even if we admit that such activities can all be explained in terms of neural excitation, declare with Wundt that for that reason they are beyond the limits of our psychology? Can we hope to know nothing of the nature of such activities? It must of course be admitted at the start that all that we can know of them is by inference from their results; they are themselves never, from their essential nature, material for introspection. But yet these results may be interpreted so as to throw some light on the nature of the processes involved.

It will be convenient to take our start from the phenomena of association. Wundt (86 III, p. 549) has differentiated between outer and inner association, or, as some of his pupils have put the distinction, between association by form and association by content, making outer association refer to the connection of ideas by spatial or temporal co-existence or succession, while inner association designates connection through content, including the categories of association by co-super- and subordination, similarity and contrast and causal and purposive connections. We shall also include under the term outer association connection through sound, such as clang and rhyme associations, word completion and the like. One who is following a logical train of thought finds ideas arranging themselves by the connections which characterize the phenomena of inner association. But it is a well-known fact that in revery, in fatigue, intoxication, and the like states, outer associations play a more prominent rôle. The experiments of Aschaffenburg mentioned above (3) bear out the experiences of everyday life in this respect. In one series of his experiments he had his subjects come to the laboratory fatigued by a night of work without nourishment. He found that under these conditions there was an increase of outer associations, associations by sound, by well worn and habitual paths, and the like. He concludes that under the influence of fatigue a stimulus works less through its content and more through its sound. He also found the same phenomena under the influence of alcohol and narcotics.

Jung and Riklin (51) in their experiments, found similar results. They also found that, contrary to what might perhaps be expected, educated persons showed more outer associations than uneducated. But this is easily understandable from the point of view that for uneducated subjects the task is one producing close attention, while for educated the associations are more peripheral in nature. The experiments of Ziehen showed similar results, as does work with the insane.

Both from the experiences of everyday life and the experimental evidence we must conclude that a lessened power or degree of attention means an increase of outer associations, of association by form. But this is merely saying that outer associations are characteristic of marginal, inner of focal, consciousness. As we get away from the centre of consciousness outer associations increase. Now one step more. When we consider the phenomena of mediate association shown in the experiments cited above, we find that both Aschaffenburg and Jung and Riklin conclude that the greater part of mediate associations are associations through form and not through content. In some such cases the links may be conscious, but we have seen that there is reason to think that sometimes the process falls below the threshold. If we grant this, we find that we have here exactly what we might expect, the unconscious link shows the same determination by sound, when later it is dragged up to consciousness, the same sort of outer association, that characterizes marginal consciousness.

The phenomenon is at least suggestive. Why ought we not to expect to find in the infraconscious region merely a higher degree of that dissociation which we have found to increase as we go from the focus to the margin of consciousness.

We expect to find in focal consciousness a narrow field, shifting not altogether at hazard, but through association by content. Somehow the set of consciousness brings it about that, on the whole, a given path is followed, but with many stumblings by the way, many fleeting adventures, irrelevancies, that show us how difficult is the straight and narrow way of following a train of association by content. Now whatever diminishes the power of apperception, of attention, diminishes this power of internal association—fatigue, drugs, preoccupation with other matters. What is characteristic of marginal consciousness, then, and, by inference, of the region below consciousness, is a lack of the selective activity of apperception. This is a truism so far as its application to marginal consciousness is concerned; but its importance as applied to the field below has hardly been recognized.

Let us conceive, then, of a vast range of activities, neural if you like, devoid of properties sufficient to bring them to the focus of consciousness, but with sufficient activity to influence the course of ideation through association—or the propagation of neural excitations. Here associative processes will be carried on by habitual and well-worn ways, by superficial associations that are formal, mediated by images and not by abstract connections, by sound, rhyme, especially by a common feeling-tone, in short, by every way, however superficial, in which excitations set up in one neuron group may be propagated. Here we have, then, a condition in which currents are not drained off in one direction by one dormant tendency, but run out in all directions—a condition to which we tend always to relapse even in our most logical moments.

This may give us, for example, an explanation of the unconscious solution of problems, inspirations, and kindred phenomena so often cited. We all know how often a solution which strikes us as obvious when once it is arrived at is hindered by the fact that our thought processes have been held by our attention too closely in rutty ways. Now with a relaxation of the attention and the consequent greater loosening of the associative bonds, wider elements enter in, there is more diffusion of activity, and it would be strange if now and again fruitful points of view were not arrived at merely by the free play of associations. Such associative activity may well go on below the threshold, and is it not in such cases just the play of outer associations there present that accounts for the new point of view and the solution of the vexatious problem. When the process is finished and the results arrive in consciousness, we infer that the process must have been a logical one to have arrived at such a result, forgetting that the goal is the same, whether reached by devious ways or by a straight line from the starting-point.

Such an hypothesis of the nature of the activity of the infraconscious region must of course be entitled to consideration only as it can explain the phenomena in which its activity is manifest. The collection of phenomena in which the unconscious has been traced most keenly and with most in sight is undoubtedly that given by Freud in his various works. But in attempting to account for them he has been led to conceptions which have at least this objection, that they are cumbersome and psychologically crude, and may well be dispensed with if the facts can be explained more simply. We refer especially to the theory of the two systems of energy in the soul, and to the theory of repression which is bound up with this point of view.

Let us inquire first what the phenomenon of repression really means in psychological terms. When one attempts to "repress" a group of ideas with a common feeling tone such as we call a complex, one notes, first, that the attempt is made, as it were, indirectly, by turning the attention to other things, so as to drain away, so to speak, as much energy as possible from the complex. The motive force of the activity we may agree with Freud is, in the broad sense, a turning away from pain and to pleasure. This diversion may be successful, and the complex lose so much energy that it is no longer material for consciousness for a time. But it is only a short way below the surface. If in the course of our occupation with other things a stimulus comes which remotely suggests the experience with which the complex deals, we all know how easily it appears again above the surface, and we all know how such a chance association becomes fixed, so that the odor of a flower, the sight of an animal, which was either part of some affectively toned experience, or, during the time when the complex was more or less constantly in consciousness, came in some chance way to stand in relation to it, will call up the complex after years. Now in case the complex was particularly unpleasant, so that attention was persistently diverted from it, the complex itself may become practically devoid of energy, or, better, the habit may have been formed of instantly drawing off energy which would excite it, into other, more or less habitual ways, and yet these associations, strongly persistent because they shared the strong feeling-tone of the complex, may continue, when their original significance has been forgotten (70). A few elements, either in the complex itself, or in experiences associated with it, have come to symbolize the complex and possess its feeling-tone—it has split, as Prince (70) says, or else it has transferred its energy to some chance association. Not enough has been made of this period of hours or months when the complex constantly vibrated between consciousness and the infra-conscious. The possibilities of association here are infinite, so that almost anything may come to symbolize the complex, as Binet has shown that there is practically nothing which may not be brought into association with the sex instinct (5). This is of course essentially Prince's idea of the splitting of the complex. But we must also suppose that the complex may at times be in activity, though this activity may not be sufficiently intense to cause it to come to consciousness. This comes about by the mechanism above described—processes of the most trivial nature may sink below consciousness and yet remain in activity for some time. It is sufficient on our hypothesis that one of these should stand in the loosest associative relation to the complex to make possible an excitation of the latter by the former. The complex does not energize the experience of the day, but the process is the reverse. And yet the habit may have been so strongly formed of causing the energy originally flowing through the complex to flow in other channels that the complex cannot itself come to consciousness, while it may remain active for some time and contribute to the coloring of infra-conscious associations. The more elements the complex contains and the stronger its feeling tone, the greater the number of stimuli that may excite it, though it has lost the power of becoming excited sufficiently to come to consciousness. It is thus not necessary to posit that the complex retains its full energy and is subject to a "censor" in order to explain the facts of repression; an explanation much more in accord with psychological facts is to suppose that the repression of the complex and its symbolic representation in other ways comes about by the constant tendency to drain energy away from the complex, and by the shunting of energy to other lines, determined by superficial association, and especially by association through a common feeling-tone.

But neither is it necessary to take the point of view advocated by Prince, that the complex has passed over to a "co-conscious" region, where it may function separately and aggregate to itself other complexes. For this concept, again, supposes the energy of the complex to be unabated, but barred from conscious expression; the whole range of facts can be explained merely as phenomena of the sort of association which is characteristic of the region below consciousness; not a co-consciousness which is equal to, and possesses all the characteristics of, personal consciousness, will best explain these phenomena, but the hypothesis of a region of one piece with consciousness, yet lacking its focal qualities; in a word, of increasing dissociation.

The phenomena of repression can thus be explained without recourse to any "censor" save the fully conscious tendency not to permit the mind to dwell on unpleasant experiences. Nor do the facts cited by Freud with regard to lapses, dreams, and neuroses, oblige us to take his point of view.

In the case of lapses, it has been pretty well made out that a certain class are due, as in speech and writing, to a conflict of elements within the sentence; as the writer at this moment distracted by the noise of a hurdy-gurdy, wrote the word "sentence" beginning with a "c"—evidently a case of anticipation of the "c" following later in the word. But there is without a question another type, that of the Freudian lapse, in which a complex which is not conscious is the disturbing factor. Now we know that when a complex is in consciousness it tends to betray itself by lapses in cases of relaxed attention favorable for the setting up of outer associations. It is not by any means impossible to suppose that a complex may here be excited in the infra-conscious and may betray the excitation by causing a lapse in motor or sensory activity, by the ordinary phenomena of association, without seeing in the conflict the interference of a preconscious and a foreconscious, and the activity of a censor. We may consider the mechanism of this somewhat more closely in speaking of dreams.

To take up the Freudian conception of dreams piecemeal, the first way in which it differs from prevailing theories is that it points out the distinction between the "manifest" and the "latent" content of the dream. There is a considerable body of evidence—Jones tells us (46) that about fifty thousand dreams have been analyzed by the Freudian school—in favor of the contention that dreams present the important in terms of the unimportant. One needs only to observe his own dreams from this point of view, even without much knowledge of the technique of psychoanalysis, to become convinced that at the bottom of many of them there stands the functioning of one or several complexes which do not themselves appear in the dream. Jung (54) has already pointed out that it is not necessary to accept the doctrine of the Freudian censor to admit this fact. But Freud makes the further assertion that every dream fulfills a repressed wish. He seems to use the word "wish" in two senses, which he often confuses. The first is that the consummation of a definite "wish" in the usual sense of the term figures in the dream, the second is a much wider sense which seems to mean a more generalized striving of the organism toward pleasure which is realized in the dream. In this sense any impulse of the individual is, according to his theory of pleasure-pain motivation, a wish-fulfilling activity—any activity of the organism falls into the wish category. In this sense to say that the dream presents a fulfilled repressed wish is merely saying that it presents activities which have been abandoned by the individual, and, of course, represents them as actual. It is true that the dream may present an experience which was unpleasant at the time it was undergone, but it does so because the experience has been brought into association with a complex of a similar sort, dating from childhood, at a time when the activity in question was pleasurable. In this sense the formula means hardly more than that every dream at bottom contains a complex representing activities at one time pleasant to the organism, but which would now cause pain.

Suppose now that an experience of the day before drops below the threshold and remains there in activity for awhile. Under the looser conditions of association there present, it is very easily possible for such activity to radiate out by associative paths, and set in activity other traces. Several experiences having a common element might very easily serve as the basis for a concentration of associations which would converge to a point representative of all of them, energizing it sufficiently to permit of its coming to consciousness in cases of relaxed attention, as in fatigue, or lapses, or in sleep. This would give us the phenomena of condensation and overdetermination which Freud has pointed out, and it is significant that he finds the product made possible by just such loose ties of association. Many experiences of the day before may result in the production of a few elements, and the processes of association may of course be very complex, uniting elements perhaps of the most trivial nature, for some days back, which are still fresh and therefore easily excitable, or old, habitual, perhaps vocational, paths of long duration. The experiences of the day before which were responsible for the setting up of the activity may be so trivial as to be forgotten, so that the exciting cause of the dream appears to us to be in events some distance back, which nevertheless were responsible only in a secondary way; or, as we do not know how long the phenomena of infraconscious excitation may last, it is possible that such experiences of a few days before may be directly responsible for the dream.

But during this infraconscious activity, it is very possible that complexes will be struck upon and set into activity. From such a new centre associations will in turn radiate out, finding in their turn new associations, and so on, until we get a very complex structure built up. In this final finished structure we find a strange jumble of events whose association is only possible by supposing the infra-conscious activity of complexes and experiences in a very complex way; the process is so complicated that considerable time must have been necessary for its completion; in these mediate ways events that seem to stand in no relation to each other are brought into association, and only on the basis of some such activity can we explain the fact that such a strange mixture has been worked into a unity, which leads back, on analysis, to a complex. The process may conceivably go on for hours, being given new excitation constantly by incoming stimuli which stand in relation to one or another part of the whole. Now when such a complex is set in activity it would not be able to break through into consciousness during the day, for lack of energy, and when at night the conditions would be more favorable, there are still two factors militating against such a result; the lack of energy of the complex itself, and the fact that the "dream-work" has already built up a unified structure, of material particularly suitable for presentation because of its freshness and its habitual nature. In the structure the complex appears as a determinant, and not directly, for it has only been a link in the chain that permitted the building up of the manifest content of the dream. However, some unimportant elements of the complex may appear, for it is just these which will have been least divested of their original energy, and will be more easily revived, and which will have served as the starting points and nodal points for many associations more easily than the more important elements of the complex. In some cases such elements may have so split off from the complex that, as Prince holds, the complex may not function at all as such; there may be all degrees conceivably, from the case where the complex is strong enough to appear directly in the dream to the case where only a portion of it functions at all. Thus we will get all degrees of displacement, from the case where the really important complex holds the center of the stage, to the case where it not only does not appear, but even was not functioning as a whole.

Nor is it hard to explain on this theory the reason for the prevalence of images and the almost total lack of logical connecting links in the dream material, for the infraconscious methods of association are by no means those characteristic of abstract thought, but rather of the succession of images seen in such a phenomenon as revery. There is no need to postulate a train of logical dream thoughts working out to a logical conclusion in a foreconscious stratum and captured by a preconscious complex, then turning and twisting to avoid a hypothetical censor. The whole process may be explained merely by the hypothesis that the infraconscious works by methods of outer association.

As to the question of the affective tone of dreams, we may agree with Freud that it belongs to the latent and not to the manifest content, for the associations which result in the building up of the dream probably depend in their connection in no small measure, as is characteristic of such outer associations, on a common feeling-tone. The phenomenon of secondary elaboration we may explain with Meyer (59 a) by supposing it to be a partial resumption, due to a near approach to the waking state, of the critical attitude characteristic of a high degree of attention.

There is really nothing in such a theory that is in conflict with the results which have been won on the study of dreams, and we may accept the ruling theory that the dream is a product of passive and habitual association. The theory adds, however, this; that we must suppose in many cases the processes of dream work to have been going on for some time before the occurrence of the dream. Then a peripheral stimulus may occur and, as Freud has already suggested is true in one class of dreams, set off the whole structure by a sort of explosion. This explains how a complicated dream may occur within the brief time before a stimulus wakes us, as Freud has already pointed out. We may even admit that if we knew all the conditions, we should find a peripheral stimulus contained in every dream, but we would make it the condition, and not the cause of the dream. The theory supposes, further, that there is in the dream a difference between the manifest and the latent content, due to the activity of the infra-conscious, that is, that a complex is concerned in the dream. Whether this is so in every dream is another matter. It might easily be conceivable that some dreams occur directly on the presentation of the stimulus, that we do not get always activity long-continued enough to bring a complex into the dream; that the mind has, as Titchener suggests, been left especialy suggestible in certain ways by the events of the day, so that in such dreams we really do find the product of most of the activity set up by the stimulus. It has been further urged that dreams of repeating the days' activity do not fit in with the Freudian interpretation. This may be quite true; such dreams come in light and disturbed sleep, and depth of sleep as a factor in the production of dreams is a factor which Freud strikingly disregards. The deeper the sleep, the greater the relaxation of the bonds in which attention holds our thoughts, and the more opportunity for the results of such dream work to break through into consciousness. It is, too, in the dreams of neurotics, who are characterized by the presence of great complex-masses, that we should expect to find the greatest number of dreams referring to such complexes. All that we are here urging is that there do occur dreams which are amenable to interpretation, which do show the activity of a complex, and which are only explicable on the basis of more or less long-continued infraconscious activity. We might expect to find the proportion of such dreams to vary with the individual; Freud has generalized perhaps too hastily in finding every dream amenable to his formula. But that such dreams, dealing with complexes, do occur, one has only to examine his own dreams to discover.

If now we turn to the realm of abnormal phenomena, we find evidence of the same mechanism of association. A complex which, as mentioned above, vibrates for a time between consciousness and the infraconscious is probably for some time in a condition of continuous activity, either in consciousness or below. As the habit is gradually formed of sending energy through other channels, the activity of the complex gradually dies away.

Now, in case a neurosis is formed, we may find parts of the original experience which continually obtrude themselves on consciousness, with a strong feeling-tone. These are complexes which have not been successfully de-energized. We may find again, that the original experience has been forgotten and cannot be recalled. But other, apparently meaningless, ideas or symptoms, obsess the patient, which, when the original complex is dragged up by psychoanalysis, are found to be of a similar feeling-tone, and bound to it by ties of exactly the sort of formal association which we have been considering. Such associations may have been formed during the time when the complex was in consciousness, or, as in many of Freud's analyses, evidently during the time when the complex was in infraconscious activity. We are not obliged to suppose in such a case that the complex exists somewhere as strong as ever, but that again we have the phenomena of transfer of its energy through paths of superficial association; a conception which is like that of Prince, except, as mentioned above, in the assumption which he makes of a co-conscious region to which the complex has retired; and, indeed, such a conception is unnecessary from his own point of view; his own theory of the "splitting" of the complex covers the facts in the case. There is no need of invoking the hypothesis of a co-conscious to explain the phenomena of alternating personality, in which we should look for the intensification of normal moods with their tendency to exclude from consciousness all that is not congruous to the mood. Experiences of different feeling-tone tend to group similar ones around them and to form different systems, from one of which we pass to another with more or less of a sharp break. This is true in normal life; the business man in his office and on vacation makes the transition, it is true, somewhat gradually, and we do not speak of dual personality. Yet there has been a rearrangement of outlook and habits, and even a little amnesia of his routine duties. Let the same transformation occur suddenly, and a little more completely, and we speak of a dual personality. Even where one personality seems to co-exist with the other, such co-existence is always inferred either from two sets of activities carried on at once, as in some automatic writing, or from memory of one personality for acts done by the other. In the former case, it is to be noted that nothing attained by automatic writing shows anything more than the activity of such a system as we have called infraconscious; and, indeed, much of the material so obtained shows strikingly just the same loose trains of thought that we have discussed before; in this case, as in hysteria, portions of motor series have become involved, but it is the habitual, and the fantastic, and the superficial, that result, and it is not necessary to suppose a second consciousness in explanation.

In cases in which one personality remembers the acts of the other, we are not forced to conclude that both co-existed, but rather that such a phenomenon may be explained by the ordinary laws of memory and association, as Münsterberg (63) points out. The break between systems of ideas is sharp enough that ideas come from one into the other system with a certain seal of strangeness upon them, and are thought of as the thoughts and acts of another personality, which this one could only observe.

The rôle of superficial and symbolic associations—the fact that neuroses are association-phenomena—these are just the facts which Freud's investigations bring out, and which are the very facts we should expect to follow from an hypothesis like that which we have been discussing. The complex may be formed in childhood, be completely forgotten, but still possess some energy, though not enough to raise it to consciousness. Let now, in later years, some experience of similar feeling-tone occur and, if the older complex is still in existence, conditions are very favorable to bring the two into association, either at the moment of the experience, or later, and so to give the phenomena of over-determination which Freud describes. This will of course be particularly easy in the case of sexual complexes, owing to their strong feeling-tone and their power of forming widely radiating associations. The plasticity of all connected with sex, the ease with which anything comes to symbolize it, may give us a clue as to why sexual complexes are so potent. The symptoms of neuroses are thus nothing but associations set up from a complex, which have become stereotyped, and the connection either forgotten or never present to consciousness; which latter case Freud seems to find in so many analyses. If we accept his doctrine that the whole number of hysterical symptoms, including anasthesias, paralyses, and the like, together with all symptoms of the other neuroses, are but such associations, we see here the working out of the same phenomena of outer association that we have seen to be characteristic of infraconscious activity, with all the mechanism that we have seen in dreams, of condensation, displacement, multiple identification, and the like. Neuroses are then, as Freud has insisted, but exaggerations of normal phenomena, ways of reaction which have become stereotyped and habitual; to use his phrase (32) "neurotics fall ill of the same complexes with which we sound people struggle."

Now all this activity which results in de-energizing a complex both in sound individuals and in neurotics is an attempt in a literal sense to dis-associate the complex—to exclude it from the chain of associations. Personality is not broad enough to adjust to it, as Freud would say, to take it up into the ordinary train of associations.

The efficacy of psychoanalysis will then be essentially as Freud states it (32). An origin is found for the apparently senseless reactions, the complex is brought up into consciousness, and built into the associative activity; personality is broadened sufficiently to face the disagreeable instead of recoiling from it, adjustment is made to the situation, and, as always when we succeed in reacting to a situation, the corrosive force of the complex is lost, as well as the potency for evil of any symptoms which may have represented it.

It was Wundt's dictum that the regions of activity below the threshold of consciousness could never be material for our psychology. This dictum it has been the essential service of Freud to disprove. He has shown us, incompletely enough, of course, by what ways, foreign to our methods of logical thought, activity here goes on, how emphasis is shifted, logical relation omitted, compromise ideas arrived at, fusion and condensation brought about; and how all this characterizes not only abnormal conditions, but everyday life. He has pointed out convincingly that we must look below consciousness for the springs of psychic life, and shown us how at fault as to our natures and acts introspection usually is. Our criticism has been rather directed at his theory of the structure of the psyche. The region below consciousness is hard to conceive as he would have us. It is rather, as Jastrow has said, of one piece with consciousness. We may even conceive very well of it all in neural terms, in terms of dispositions and their *Bahnung*. But we must suppose this stratum to be the most essential part of our personality. Here behind the scenes the greater part of psychic business is transacted; it is just such outer associations that are responsible for the greater part of our reactions, that we proudly consider to have been the work of our logical thinking, as Jones (47) has well pointed out. We only get in consciousness a few of the many determinants. Prejudice, likes and dislikes, attitudes, "*Einstellungen*," are derived in great measure from the activity of the infraconscious, and compared with its functioning the abstract train of thought characteristic of focal consciousness, always painful to hold, always tending to lapse, is a little artificial and foreign to the real nature of the psyche, of which it is at most but the surface film. We may go one step further and, basing on the interpretation of myth, especially that of the Freudian school, and other activities of primitive man, venture the hypothesis, as some of his adherents have done, that the psyche of primitive man was characterized more completely even than ours by such loose associative activity; consciousness as we know it is then but a comparatively recent development and cannot yet very much affect the parts underneath. The soul, like the dream, has a "latent" as well as a "manifest" content, and it is through the former alone that the latter may be read.

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A CHILD'S VOCABULARY AND ITS DEVELOPMENT

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INTRODUCTION

The human race has made many inventions enabling it more perfectly to adapt itself to its environment. The greatest of all is Language. Language has been the open sesame to progress. Written language represents in a condensed form the experiences and aspirations of all races. The thought and mental development of a people are limited by the number of words in its vocabulary and expressive gestures at its command. Accuracy of thought is in turn dependent on inflections and shades of meaning. Biologists affirm that ontogeny repeats phylogeny; in other words, the individual recapitulates the race. Though this theory can be accepted only with considerable modifications, philologists have frequently in their search for the genesis of speech turned to the babbling and prattling of the infant, in spite of the assertion of Max Müller that he "feared it useless to watch the first stammering of children." There is a striking analogy between the development of speech and general intelligence in the human race and the child. From careful study of the ontogeny of speech in the infant, hypotheses have been deduced regarding phylogenetic origin of language (Darwin, Romanes, Beckman, Chamberlain, and many others). While educational psychology treats the development of the child between the ages of six and sixteen (Judd), a systematic study of the child before this age is of the utmost value to scientific education as well as of interest to philologists (Hall).

Many children's vocabularies have been recorded, but nearly all of them are individual cases. Mrs. Hall (10) and Mr. Mickens (20) alone have published records of any extended attempt to note the progress in word forming processes in the same child for consecutive periods. Unfortunately their work was interrupted when the children were seventeen months and twenty-seven months old, respectively. Prof. H. N. Gale (7) has also given us the result of a similar study covering the period between the second and third years of the child's life. Meumann (41) states that this study should continue until the fifth or sixth year, as the later years throw much light on the former. This article will submit a few facts concerning a child's vocabulary and a brief analysis of its development from birth until four years of age. Systematized data are yet too meager for conclusions which are entirely trustworthy. When more similar material has been gathered some future scientist may formulate general principles which will guide the investigator in further research which will lead to a further discovery and unification of general laws that can ultimately be turned to practical account by the educator. Facts of every kind in regard to development of intelligence in children, including their progress in language, are important, but in the earlier stages of the investigation the common and ordinary facts rather than the unusual and extraordinary are the most valuable (Kirkpatrick (15).

A. VOCABULARY

1. Biographical. Elizabeth Allegra Pelsma was born July 4, 1905, at Nappanee, Ind. After living here one and one-half years she was taken to Reno, Nev. Remaining there one year, she was returned to Indiana. Her second summer, and a few odds weeks at other times, were spent on a farm, at the home of her maternal grand-parents in Northern Michigan. The six months prior to her fourth birthday were spent in Chicago. She has, therefore, had an opportunity to familiarize herself with the vocabulary of both city and country, as well as different sections of the country.

Her father is a teacher. Her mother is a high school graduate. Her father's nationality is Dutch. Her mother's, French and Scotch-Irish and German. "E" has, in the main, inherited the physique and temperament of her father.

She has been living with her parents continually, excepting a few days while visiting alone with her aunt. Her associates have been mainly adults. She has had little opportunity to play with children. She did not attend kindergarten until after she was four years old; has gone to Sunday School only a few times, and has had no opportunity to have a "chum" of near her own age, except for a few months. She has had no special instructions; cannot read one word, manifested no desire to read up to her fourth birthday; and has been given information only when she has demanded it, excepting such instructions as every American child has a right to expect from his parents and usually receives. Her questions have been answered when they were asked for the purpose of information, but were decidedly discouraged when asked for the mere purpose of asking questions. Such colloquy as the following has always been discouraged: "What are you going to do with that stick?" "Put it in the stove." "What are you putting it in the stove for?" "To burn." "What do you want to burn it for?" "To make heat." "What do you want to make heat for?" etc.

"E" has been permitted to grow up and live as "naturally" as possible. She has been permitted to have her own way much of the time. Absolutely no attempt has been made for systematic training of her intellect or emotions, as advocated by some educators (Sanford Bell). She has been permitted to follow the example of Rousseau's "Emile" whenever and wherever possible. When she has asked the name of an object or a process, she has been informed and the process explained in such language as she was able to comprehend. This was not done with a view of increasing her vocabulary but to acquaint her concerning her environment, and encourage that innate curiosity, without which development would be impossible. Her environment has been made as congenial and varied as circumstances permitted, and was deemed practicable. As she is the only child in the family, she is compelled to play much alone. Her mother has been her constant companion day and night. Her association with her father and other adults has been unusually limited. Her father has been with her less than the average American father is with his child. During the first four years of her life her father has been obliged to be absent from home about ten out of the forty-eight months, or about one-fifth of the time.

Biologically "E" may be termed a perfect child. She has always been strong, robust, and healthy; is symmetrically formed and developed. She has been the personification of health excepting a slight attack of lung fever in the fall of 1907 and a few days of illness incident to childhood. Her weight and height is as follows:

	At birth	6 mo.	1 yr.	2 yrs.	3 yrs.	4 yrs.
Weight lbs.	9·2	17·1	23·8	28·1	31·5	33·2
Height in.	21.0	26.6	29·7	35·2	38·1	40.6

II. METHOD OF SECURING DATA

Though no attempt was made to increase "E's" vocabulary faster than natural contingencies demanded, a rigorous attempt, however, was made to secure as far as possible all the words at her command during the special period of observation.

The ten words in her vocabulary when she was twelve months old were secured without much trouble. To procure the vocabulary at the end of the second, third, and fourth years, demanded more skill and new methods. Three weeks prior to her 2d, 3d, and 4th birthdays, recording began and was continued uninterruptedly until her natal day. The plans were as follows: A tablet containing over twenty-six pages was obtained, and each page lettered alphabetically. On each page vertical columns were drawn corresponding to the number of the parts of speech. In this tablet all words, as soon as secured, were written on the appropriate page and in the proper column. Pieces of blank paper were tacked on the wall in a number of rooms, and a pencil fastened near by. On them her mother jotted such words as were used by "E" in the absence of her father. With this co-operation of her mother a great many words were secured which would otherwise have been missed.

In all five distinct methods were used to secure the data: (1) Daily conversations with the child during the three weeks prior to her birthday. Most of the words were secured in this way. The child was very talkative and with a little encouragement would talk about her experiences of the day and of her desires for the morrow. (2) When it was believed that she knew the name of an object, action, attribute, or relation, and the word had not appeared in the conversation mentioned in (1), questions were framed to bring out the desired word in her answer. For example: Believing that she knew the word stove-poker, she was asked, "What does papa use to stir the fire?" She said, "shovel." "No, something long and round." She answered "poker." "How did the horses get across the water when you were riding with grandpa?" "They walked." "Did they walk in the water and get their feet wet?" "No, they walked on the *bridge*." (3) The direct naming of an object or an action. She would be shown a familiar object and asked to name it. The question usually assumed this form, "What is this?" If she knew she would name it. This method has been objected to by a few writers on children's vocabularies but the writer sees no reason why it is not legitimate. The child has the name of the object in his vocabulary and the reason it is not used in his ordinary conversation is because there has been no occasion. (4) The child at three years of age was frequently overheard to carry on an imaginary conversation with her dolls or playmates. These words were readily recorded. (5) In her fourth year "E" was old enough to comprehend the purpose of being daily watched and followed with tablet and pencil. In answer to her inquiry she was told that papa wanted to write down all the words she knew. She took considerable interest in the proceeding and seemed proud that she knew so many words. Frequently she would come up to her papa and say: "I know ———, have you that written down?" "U——— is one of my words; write that down." She seemed to delight in this and was very painstaking in having all her words written down in that tablet. This direct aid was of great importance in securing her vocabulary. Miss Mateer (19) objects to this method for the reason that the child may become self-conscious and refuse to talk, etc. This might be true with some children, but not with "E," and it is very doubtful if there are very many children who would become too self-conscious to express themselves naturally, they might with strangers, but not with those whom they were well acquainted with. Miss Shinn (49) corroborates this view.

The following tables claim no originality as to arrangement. The plan of Holden (11) has been deemed the most complete and practicable of any yet published, with the exception of Mrs. Hall's (15). However, Mrs. Hall's method contains phases which was not thought advisable to emphasize in this paper.

Writers are far from agreeing as to what should be included in a vocabulary such as is here recorded. Some would include proper names with common nouns. (Whipple (32), Moore (21), Mateer (19).) Others would include inflected forms of verbs and adjectives (Whipple (32), Tracy (51)). Until an agreement is reached as to what words shall be included in a standard vocabulary, averages and comparative tables are of little value. In "E's" third year vocabulary, proper nouns constituted 7% of her nouns; and in her fourth year, 10%.

The following principles were observed in recording this vocabulary. Proper nouns are excluded. Present tense only of verbs when present tense was used by the child. No participial forms whatever, nor other inflected endings or grammatical variants. Articles have been included with adjectival forms. Singular number of nouns used in all cases when both singular and plural forms were known; but where only the plural form had been used, that form was recorded. Mr. Whipple's contention that every form should be included (excepting plurals) is more psychological than grammatical. All agree that "tall" and "taller" are two distinct conceptions in the child's mind, but how about *goose* and *geese*, or *dog* and *dogs?* Mr. Whipple has excluded plurals on the same principle that he has included *am* and *was*—a psychological rather than a grammatical basis. This exclusion does not seem consistent nor is this principle of classification practicable. It is true that the child sees no philological connection between *tall* and *taller* at two years of age, but how can it be told just when he does? Neither has the child but *one* concept for *dog* and *dogs*. They, too, are "distinct acquisitions" as well as *tall* and *taller*.

The only digression found in the following vocabularies, from the principle of reducing the number of words to a minimum, is in including all forms of the pronouns. No apology is made for doing this. Nearly all writers have done so, besides they are comparatively few, constituting in the fourth year less than two per cent. of the total number of words. Again, grammatically, parts of speech are determined by the use of the word in the sentence. No word has any part of speech, intrinsically; only when it becomes part of speech, as when used in a sentence. Therefore, the words as recorded have been given a substantive, verbial, or adjectival classification based on the manner and form as they were used by the child. "My *below* lip hurts." "Won't you *hatchet* this?" Here "below" has an adjectival form and "hatchet" is used as a verb—and both have been so classified. Great deviations from the common usage have been italicized. Invented words and others not sanctioned by the ordinary dictionary have been placed in quotation marks. Compound words have been freely inserted when they were so expressed by the child. Frequently it was difficult to determine whether a word should be classified as a compound noun or as an adjective and a noun. Example, gasoline-stove, gasoline-can, etc. The word gasoline might properly be called an adjective, and stove, cow, etc., used as separate nouns. Such expressions were usually classified as compound nouns unless the adjectival form was frequently applied to unrelated objects.

III. Detailed Vocabularies

Age 12 months.

B. Nouns—Baby.
D. Nouns—Dada (daddy), dog.
  Adverbs—Down.
G. Verbs—Go.
I. Nouns—"I" (water. *A few months later this was changed to "iyah."*
K. Nouns—Kitty.
M. Nouns—Mama, man.
U. Adverbs—Uppe (up).

None of the above words were joined to form what is usually called a grammatical sentence, though each expressed a complete thought. (See IV under B.)

III. DETAILED VOCABULARIES

Age 24 months.

A. Nouns—Alarm-clock, alligator, apple, apron, arm, ashes, aunt.
Verbs—Am, ask.
Adjectives—All, any.
Adverbs—Almost, along, after, away.
Conjunctions—And.

B. Nouns—Baby, back, bacon, ball, banana, bank, barn, barrel, basket, bath, beans, bed, belt, bird, block, bonnet, book, bookcase, bottle, box, bracelet, bread, breakfast, bridge, broom, buggy, butter, button.
Verbs—Bite, break, bring, brush, build, bump, burn, button.
Adjectives—Bad, big, blue, both.
Adverbs—Back, behind, beside, bye.
Interjections—Boo.

C. Nouns—Cabbage, cap, cape, calf, can, candy, carpet, cart, cat, catalogue, chair, chicken, cherries, church, clock, closet, clothes, coal, coat, cocoa, comb, cookies, cream, cord, cow, cupboard.
Verbs—Can, can't, came, clean, carry, catch, cough, count, cry, cut.

C. Adjectives—Clean.
Adverbs—Careful.

D. Nouns—Dad, daddy, dimple, dinner, dish, dog, dollie, door, drink.
Verbs—Darn, dip, do, dress, drink, drop.
Adjectives—Dirty, dry.
Adverbs—Down.

E. Nouns—Ear, "eats" (raisins), egg, eye.
Verbs—Eat.
Adjectives—Empty.

F. Nouns—Face, fan, fence, finger, finger-nail, fire, floor, flour, flower, fly, foot, fork.
Verbs—Fan, feed, feel, fix, fly.
Adjectives—Fat, flat, funny.

G. Nouns—Garden, gate, girl, glass, go-cart, grandma, grandpa, grass.
Verbs—Get, give, go.
Adjectives—Good, green.

H. Nouns—Hair, hammer, hand, handkerchief, handle, hat, heel, home, horse.
Verbs—Hurry, hurt.
Adjectives—Hard, heavy.
Adverbs—Here.
Pronouns—He, him.
Interjections—Hello.

I. Nouns—Ice, ink.
Verbs—Is, isn't, *itch* (scratched).
Adverbs—In.
Pronouns—I, it.

J. Nouns—Jelly, Jumper.
Verbs—Jump.

K. Nouns—Key, kiss, kitty, knife.
Verbs—Kick, kiss.

L. Nouns—Lamp, lap, leaf, leg, lemon, letter.
Verbs—Let, lift, look, lose.
Adjectives—Little, long.

M. Nouns—Mail, mamma, man, meat, medicine, milk, milkman, moon, mother, mouse, mouth, mud.
Verbs—Make, may.

M. Pronouns—Me, mine, my.
N. Nouns—Nail, name, neck, needle, night, "nighty," nose.
Adjectives—New, nice.
Adverbs—No, now.
O. Nouns—Onion, orange.
Verbs—Open.
Adjectives—Old, one, other.
Adverbs—Off, out, over.
Prepositions—Of, on, over.
Interjections—Oh, öö, ouch.
P. Nouns—Pail, pan, pancake, papa, paper, patch, pan, petticoat, pie, pig, pillow, pin, plate, pop-corn, postage-stamp, potatoes (padils), pump.
Verbs—Paint, pinch, pound, pull, push, put.
Adjectives—Pretty.
Q. Nouns—Quilt (twilt).
Verbs—Quit (twit).
R. Nouns—Rain, rake, rest, ribbon, robe, rocking-chair, rolling-pin.
Verbs—Rake, ride, ring, roll.
Adjectives—Red.
S. Nouns—Salt, sand, saucer, saw, school, sewing-table, shirt, shoes, side, sister, sitting-room, "skeeter," skin, snow, soap, spoon, steps, stockings, stove, strap, straw, string, supper, swing.
Verbs—Saw, scratch, see, sew, sing, sit, sleep, smell, sneeze.
Adjectives—Sick, sleepy.
Interjections—Shoo.
T. Nouns—Table, table-cloth, tail, teeth, thing, thread, throat, tin-cup, titty, toast, toes, tongue, tooth-picks, top, town, train, tub.
Verbs—Tack, take, talk, tell, tickle, tie, tip, try, turn.
Adjectives—That, the, this, tiny, tired, two.
Adverbs—There, then.
Prepositions—Through, to.
U. Nouns—Union-suit, up-stairs.
Verbs—Unbutton, "unlocken" (unlocked).
Adverbs—Up.
V. Nouns—Vessel (bettaw).
W. Nouns—Wash-board, watch, water (ä-ja), whip, wood.
Verbs—Walk, wash, wear, wet, whip, wipe, wrap.
Adjectives—Wet, white.
Adverbs—When.
Prepositions—With.
X.
Y. Adjectives—Yellow.
Pronouns—You.
Z.

Age 36 months.

A. Nouns—Alarm-clock, alligator, apple, apron, arm, ashes, aunt, automobile, ax.
Verbs—Am, aren't, ask.
Adjectives—Afraid, all, any.
Adverbs—After, almost, along, away.
Conjunctions—And.
B. Nouns—Baby, back, bacon, ball, banana, bank, barrel, barn, basket, bath, beans, bed, bell, belt, berries, bib, bicycle, bird, bite, black-berries, blanket, black, blood, board, body, bone, bonnet, book, book-case, bottle, bowl, box, boy, bracelet, braid, bread, breakfast, breakfast-food, brick, bridge, broom, brush, bucket, bug, buggy, bump, butter, button.

B. Verbs—Bake, bathe, bend, bite, bleed, blow, boil, bother, break, bring, brush, build, bump, burn, burst, button, buy.
Adjectives—Bad, bare-foot, better, big, bitter, black, blue, both, brown, busy.
Adverbs—Back, before, behind, beside, bye.
Prepositions—By.
Interjections—Boo.

C. Nouns—Cabbage, cake, calf, can, candy, cap, cape, car, card, carpet, cart, cat, catalogue, chair, chalk, cherries, chest, chicken, church, churn, cinnamon, o'clock, closet, clothes, clothes-line, clothes-pin, clothes-rack, coal, coal-pail, coat, cocoa, coffee, cold-cream, collar, comb, comforter, cookies, corn, corner, corset, couch, cough, crackers, cream, crock, curtain, cuff, cuff-button, cup, cupboard.
Verbs—Can, can't, care, carry, catch, chase, clean, climb, close, come, cough, count, cry, cut.
Adjectives—Clean, cold, cute.
Adverbs—Carefully.

D. Nouns—Dad, daddy, darling, daughter, dimple, dinner, dipper, dirt, dog, dollie, door, dress, drink, drum.

D. Verbs—Darn, die, dig, dip, do, don't, dress, drink, drive, drop, drum, dust.
Adjectives—Dark, dirty, dry.
Adverbs—Down.

E. Nouns—Ear, eating-apron, egg, elbow, end, envelope, eye, eyebrows.
Verbs—Eat, excuse.
Adjectives—Empty.

F. Nouns—Face, fan, feather, feather-duster, fence, finger, finger-nail, finger-stall, fire, fish, flag, floor, flour, flower, fly, foot, fork.
Verbs—Fall, fan, feed, feel, find, fix.
Adjectives—Fat, first, flat, four, fresh, full, funny.
Adverbs—Far, fast.

G. Nouns—Garden, gate, girl, glass, glasses (eye-glasses), go-cart, grandma, grandpa, grapes, grass, grater, ground.
Verbs—Get, give, go, grow, grunt, guess.
Adjectives—good, gray, green.
Adverbs—Good-night.

H. Nouns—Hair, hair-pin, hammer, hamper, hand, handkerchief, handle, hat, hatchet, hay, head, heel, hiccough, hobby-horse, hoe, home, horse, house.
Verbs—Have, hear, hit, hold, hug, hurry, hurry, hurt, hunt.
Adjectives—Hard, heavy, hot, hungry.
Adverbs—Here.
Pronouns—He, her, him, his.
Interjections—Ho, hough.

I. Nouns—Ice, ice-cream, ice-man, ice-wagon, ink, iron, itch.
Verbs—Iron, is, isn't.
Adverbs—Inside.
Prepositions—In.
Pronouns—I, it.

J. Nouns—Jelly, juice, jumper.
Verbs—Jump.

K. Nouns—Kettle, key, kiss, kitchen, kitty, knee, knife, knot.
Verbs—Kick, kiss, know.

L. Nouns—Lace, lady, lamp, lamp-chimney, lap, lard, leaf, leg, lemon, lemonade, letter, light, line, lip, looking-glass.
Verbs—Let, lift, light, like, "locken" (locked), look.
Adjectives—Last, light, little, long.

M. Nouns—Mail, mail-box, mail-man, mama, man, meat, medicine, milk, milk-man, mirror, monkey, moon, mouse, mouth, mouth-organ, mother, mud, mustache.
Verbs—Make, may, mix.
Pronouns—Me, mine, my.

N. Nouns—Nail, name, neck, necktie, needle, night, night-drawers, "nighty", noodles, nose.
Verbs—Nail.
Adjectives—New, nice.
Adverbs—Never, no, now.

O. Nouns—Oil, oil-can, oil-cloth, onion, orange, oven.
Verbs—Open.
Adjectives—Old, one, other.
Adverbs—Off, on, out, over.
Prepositions—Of, on, over.
Interjections—Oo, oh, oh-my, ouch.

P. Nouns—Pail, paint, paint-brush, pan, pan-cakes, pantry, pants, papa, paper, paste-board, patch, pattern, peanuts, pears, pen, pencil, penny, people, pepper, petticoat, piano, picture, pie,

P. Nouns— piece, pig, pig-pen, pillow, pin, pin-tray, pitcher, plant, plate, pocket, pocket-book, porch, post, postage-stamp, postal-card, powder, potatoes, pump, pusher, pussy.
Verbs—Paddle, paint, pat, pick, pin, pinch, plant, play, pound, pull, pump, push, put.
Adjectives—Pink, pretty.

Q. Nouns—Quilt.
Verbs—Quit.
Adverbs—Quiet.

R. Nouns—Rack, radish, rain, raisin, rake, raspberry, ribbon, ring, robe, rocking-chair, rolling-pin, rope, rubbers, rug.
Verbs—Rain, rake, rest, ride, roll, run.
Adjectives—Red, right.

S. Nouns—Sack, safety-pin, salt, sand, sandless, sand-pile, saucer, saw, school, scissors, screw, sewing, sewing-machine, sewing-machine-drawer, sewing-table, sheet, shirt, shirt-waist, shelf, shoe, shoe-string, shovel, side, side-walk, sister, sitting-room, skeeter, skillet, skin, skirt, sleeve, slipper, snow, soap, socks, soup, spade, splinter, spoon, star, starch, steps, stick, stockings, stone, stool, strap, stove, straw, street, street-car, string, sugar, supper, supporters, swing.
Verbs—Say, see, sew, scare, scratch, scour, shove, shut, sing, sit, sleep, sneeze, snow, smell, sort, stay, swing.
Adjectives—Sick, sleepy, some, sore, sorry, sour, sweet.
Interjections—Shoo.

T. Nouns—Table, table-cloth, tack, toil, tears, Teddy-bear, teeth, telescope, thing, thread, throat, thumb, tie, time, tin-cup, titty, toast, toes, toilet, tomatoes, tongue, tooth-picks, top, towl, town, toy, train, trunk, tub.
Verbs—Tack, talk, tear, tell, thank, throw, tickle, tie, try, turn.
Adjectives—That, the, this, three, tight, tiny, tired, two.
Adverbs—There, through, too.
Prepositions—Through, to.
Pronouns—Them, they.

U. Nouns—Umbrella, union-suits.
Verbs—Unbutton "unlocken."
Adverbs—Up, up-stairs.
Prepositions—Up.
Pronouns—Us.

V. Nouns—Vaseline, vessel, vinegar.
Adverbs—Very.

W. Nouns—Walk, watch, water, wash-board, wash-boiler, wash-tub, waist, way, wheel, wheel-barrow, whip, whistle, window, wood, writing-desk.
Verbs—Wait, walk, want, wash, watch, wear, wet, whip, wipe, wrap, write.
Adjectives—Well, white.
Adverbs—When.
Prepositions—With.
X.
Y. Adjectives—Yellow.
Pronouns—Your, yours.
Z.

Age 48 months.

A. Nouns—Afternoon, alligator, ankle, anybody, apple, apricot, apron, arm, aunt, automobile.
Verbs—Am, aren't, ask.
Adjectives—A, afraid, all, an, another, any, around, awful.
A. Adverbs—Afterwhile, again, alike, along, almost, alone, alright, anywhere, apart, around, away.
Prepositions—Across, after, at, around.
Conjunctions—And.
Interjections—Ah.
B. Nouns—Baa, baby, back, bacon, ball, bologna, banana, band, barn, barn-yard, barrel, basket, bath, bath-room, beads, beans, bed, bed-room, beetle, bench, bell, belt, belt-buckle, berry, berry-boxes, bib, bicycle, bird, birthday, bite, biter, black-berries, blanket, block, blood, blueing, boat, boat-rider, boards, body, boiler, bone, bonnet, book, book-case, bottle, bottom, bouncing-ball, box, boy, braid, bread, bread-dough, bread-pan, breakfast, breakfast-food, brick, bridge, broom, brother, brush, bucket, bug, buggy, bump, butter, butter-bowl, butterfly, button, button-hole, button-hook.
Verbs—Bake, bark, bathe, beat, behave, bend, bite, blow, boil, bother, born, break, bring, brush, build, burn, bust, button, buy.
Adjectives—Baby, bad, barefoot, better, big, bitter, black, blue, blue-eyed, both, bouncing, brown, bum, busy.
Adverbs—Back, backward, before, behind, besides, better, bye.
Prepositions—Behind, beside, by.
Conjunctions—But.
Interjections—Baa, bowwow.
C. Nouns—Cab, cabbage, cage, cake, calf, can, candy, cap, car, cart, carrot, cat, catalogue, catchup, card, cards, carpet, caster-oil, chain, chair, cheek, cheese, cherries, chest, chewing-gum, chick, chicken, children, chimney, chin, chocolate, Christmas, church, churn, ceiling, cellar, cemetery, cigar-box, cinnamon, class, cloak, clock, closet, cloth, clothes, clothes-line, clothespin, cloud, coal, coal-oil, coat, cock-a-doodle-doo, cocoa, coffee, "coffee-churn," cold, collar, comb, comforter, conductor, cooky, cork, corn, corset, cough, cough-syrup, cousin, cover, cow, crack, cracker, cracker-jack, crayons, cream, cricket, crock, crust, cuff, cuff-button, cup, cup-board, "cup-egg," curtain.
Verbs—Call, can, can't, care, carry, catch, chase, churn, clean, clime, close, come, cough, count, cover, crack, crawl, cry, cut.
Adjectives—Careful, chocolate, chrome-yellow, clean, clear, close, cold, cute.
Adverbs—Clear, careful.
D. Nouns—Dad, daddy, dandelion, darning-cotton, daughter, dear, dentist, dime, dimple, dining-room, "dinky," dinner, dipper,

D. Nouns—Dirt, dish, dish-pan, dish-towel, doctor, dog, doggie, donkey, door, drawer, dream, dress, dresser, dressing, drink, drop, drum, duck, dust.
Verbs—Darn, dip, do, don't, draw, drink, dress, drop, dry, dust.
Adjectives—Dandy, dark, dark-blue, dark-brown, dead, dirty, done, dusty.
Adverbs—Down, down-stairs.

E. Nouns—Ear, eating-apron, edge, egg, egg-beater, elbow, elevator, elevated, end, engine, envelope, eraser, evening, everybody, everything, eye, eye-brows, eye-winker.
Verbs—Eat, empty, excuse.
Adjectives—Each, early, empty, every.
Adverbs—Early, easily, either, else.

F. Nouns—Face, face-powder, fan, feather, feather-duster, fence, finger, finger-nail, fire, fire-cracker, field, fish, flag, flat, floor, flour, flour-sifter, flower, fly, food, foot, forehead, fork, friend, frog, front, fudge, funeral.

F. Verbs—Fall, fan, faster, feed, feel, figure, find, finish, fix, fly, float, forget.
Adjectives—Fat, first, five, flat, four, four-year-old, fresh, funny, full.
Adverbs—Far, fast, first, forth.
Preposition—For.

G. Nouns—Garden, gasoline, gasoline-stove, gate, girl, glass, glasses, glue, gloves, go-cart, gold-fish, goose, grandma, grandpa, grapes, grater, groceries, ground.
Verbs—Get, giggle, give, go, grow, grunt, guess.
Adjectives—Gasoline, good, graham, gray, great, greasy, green.
Adverbs—Good, good-bye, good-night, great.
Interjections—Goodness' sake.

H. Nouns—Hair, hair-pin, hair-rat, hair-ribbon, half, hall, hall-way, hand, handkerchief, handle, hammer, hot, hatchet, hat-pin, head, hearse, heart, heel, hide-and-go-seek, hiccough, hickory-nut, high-chair, hive, hobby-horse, hoe, hole, home, honey, hood, hooks, horns, horsie, hubby, hydrant.
Verbs—Ha'n't, *hatchet*, have, hear, help, hide, hike, hit, hold, holler, hug, hunt, hurt, hurry, hustle.
Adjectives—Hard, heavy, high, hot, hungry.
Adverbs—Hardly, hear, how.
Pronouns—He, her, hers, him, his.
Interjections—Hello, hey, ho.

I. Nouns—Ice, ice-cream, ice-man, ice-wagon, ink, ink-bottle, iron, ironing-board, itch.
Verbs—Iron, is, isn't, itch.
Adverbs—Inside.
Pronouns—I, it.
Prepositions—In, into, inside.
Conjunctions—If.

J. Nouns—Jacket, jelly, joke, juice, jumper, jumping-jack.
Verbs—Jerk, jump.
Adverbs—Just.

K. Nouns—Kettle, key, kick, kids, kinkling, kiss, kitchen, kitchen-cabinet, kitty, knee, knife.
Verbs—Kick, kill, kiss, knock, know.
Adverbs—Kinda.

L. Nouns—Lace, lady, lake, lamp, lamp-chimney, lamp-lighter, lap, lard, laundry-bag, lawn-mower, leaf, leg, lemon, lemonade, letter, letters, library, light, lightning, line, lip, liver, load, loaf, lodge, lounge, lump, lunch.

L. Verbs—Lay, left, let, lick, lift, light, like, listen, lock, look, loose, love, lye.
Adjectives—Last, left, light, light-brown, little, long, loose, loud, low.
Adverbs—Late, like, lot.
Interjections—Loo-loo.

M. Nouns—Magazine, mail, mail-box, mail-man, mamma, man, marble, mark, match, meat, meat-saw, medicine, milk, milk-bottle, milk-man, milk-toast, milk-wagon, minute, mirror, mistake, mitten, mole, money, monkey, moon, moon-shine, morning, mosquito, mother, motor-man, mouse, mouth, moving-picture-show, mud, muff, muffler, mush, mustard.
Verbs—Make, march, mark, match, may, mean, mend, "mickeled" (mussed), might, milk, mind, miss, mix, move, must.
Adjectives—Mad, many, merry, middle, much.
Adverbs—More, most, much.

M. Pronouns—Me, mine, my, my-own, my-own-self, my-self.

N. Nouns—Nail, name, nap, napkin, neck, neck-tie, needle, newspaper, night, night-drawers, night-gown, "nighty," nobody, noise, noodles, nose, nothing, nurse, nuts.
Verbs—Nail, name, need, nurse.
Adjectives—Naughty, near, new, next, nice, no, none.
Adverbs—Nearly, never, no, now.

O. Nouns—Oil, oil-can, oil-cloth, olives, onions, orange, oven, oxen.
Verbs—Oil, open, order.
Adjectives—Old, one, orange, other.
Adverbs—Off, on, once, open, out, outside, over.
Pronouns—Ownself.
Prepositions—Of, on, out, over.
Interjections—Oh, ouch.

P. Nouns—Package, packer, pad, page, pail, paint, paint-brush, pan, pan-cakes, pantry, pants, papa, paper, paraffin, parasol, parlor, parrot, part, patch, peach, peanuts, peas, pen, pencil, penny, people, pepper, peppermint, period, petticoat, piano, pickle, picture, picture-book, pie, piece, pig, piggie, pile, pills, pillow, pimple, pin, pineapple, pin-tray, pitcher, place, plant, plate, "plate-egg," plum, pocket, pocket-book, poker, pop-corn, porch, postage-stamp, postal-card, posy, potato, potato-cakes, potato-masher, powder, prayer, price, prunes, pudding, pump, pumpkin, pusher, pussy.
Verbs—Paint, paddle, part, paste, pat, patch, pay, pick, pile, pin, pinch, plant, play, poke, pound, pull, pnmp, punch, push, put.
Adjectives—Plaid, pink, pretty, purple.
Adverbs—Perhaps, please.

Q. Nouns—Question, question-mark, quilt.
Verbs—Quit.
Adverbs—Quick, quiet.
Interjection—Quack.

R. Nouns—Rabbit, raddish, rag, rain, rain-bow, raisins, rake, range, rat, rat-trap, raveling, rest, ribbon, rice, ride, ring, robe, robin, rocking-chair, "rolabola," rolling-pin, rompers, roof, room, rooster, rope, rubbers, rug, ruler.
Verbs—Rain, raise, rake, read, remember, rest, ride, rock, roll, rub, run.
Adjectives—Ready, red, right, rough, round.
Adverbs—Right, (a)round.

S. Nouns—Sack, safety-pin, salt, salt-shaker, salve, sand, sandals, sand-pile, saucer, sausage, saw, saw-dust, scales, scare, school, scissors, screen, screen-door, scouring-soap, screw, screw-eye,

S. Nouns—screw-driver, seam, seat, seed, set, sewing, sewing-machine, sewing-machine-drawer, sewing-table, shadow, *shave* (lather), shawl, shears, sheep, sheet, shell, shirt, shirt-waist, shoe, shoe-string, shoot, short-cake, shot-gun, shovel, side, side-walk, sink, sister, skates, skillet, skin, skirt, sky, slap, sled, sleeve, slipper, smoke, snow, soap, soap-dish, soap-suds, socks, something, soup, space, spade, spare-ribs, spinning-top, splinter, spool, spoon, stairs, stair-way, stand, star, starch, station, step, steps, stem, stick, stocking, stomach, stomach-ache, stone, stool, stopper, store, store-room, story, story-book, strap, strawberries, street, street-car, string, stuff, suds, sugar, sugar-bowl, sugar-spoon, summer, sun, sun-shine, supper, supporters, sweet-heart, swing, syrup.

S. Verbs—Say, saw, scratch, see, send, set, shake, shall, shave, shine, shoot, shout, shove, shovel, show, shut, sing, sit, skate, slap, sleep, slide, slip, smell, smoke, sneeze, sort, sow, spank, speak, spell, spill, spin, spit, spoil, sprinkle, stand, starch, stay, stick, stir, stop, string, study, stumble, suck, swallow, sweat, swim, swing.

Adjectives—Sharp, short, sick, six, sleepy, slick, slow, snowy, soft, such, sweaty, sweet.

Adverbs—Some, sometimes, so, sore, sure.

Interjection—Shoo.

T. Nouns—Table, table-cloth, tack, tack-hammer, tail, talcum-powder, tape-line, tea, teacher, tears, tea-spoons, tea-towel, Teddy-bear, telephone, telescope, thimble, thing, thread, throat, thumb, thunder, ticket, ticket-puncher, tights, time, tin, tin-cup, tire, tissue-paper, titty, toast, to-day, tomatoes, to-morrow, toe, toe-nail, toilet, tongue, teeth, tooth-ache, tooth-brush, tooth-pick, top, towel, town, train, trap, trash, tree, trouble, trousers, trunk, tub, tuck, tumbler.

Verbs—Take, talk, taste, teach, tear, tease, telephone, tell, thank, throw, tickle, tie, touch, try, tumble, turn.

Adjectives—Tall, tan, that, the, these, thin, thirsty, this, three, tight, tiny, tired, toasted, to-morrow, two.

Adverbs—Then, there, through, till, to-day, together, to-morrow, too.

Pronouns—That, this, they, them.

Prepositions—Till, to.

Conjunctions—Than, then.

Interjections—There, toot-toot.

U. Nouns—Umbrella, uncle, union-suits.

Verbs—Unbutton, undress, unfasten, unlock, untie, use.

Adjectives—Ugly.

Adverbs—Up, upstairs.

Pronouns—Us.

Prepositions—Under.

V. Nouns—Vaseline, vessel, vest, vinegar.

Adverbs—Very.

W. Nouns—Wagon, waist, wall, wall-paper, walk, wart, wash-board, wash-boiler, wash-bowl, washing-day, wash-pan, wash-rag, wash-tub, watch, watch-chain, water, water-melon, water-pail, water-pitcher, wax, way, week, weenies, wheel, wheel-barrow, whip, whiskers, whopper, wig, wind, window, wings, "winkie," winter, wire, woman, wood, word, work, worker, wringer, wrist.

Verbs—Wait, wake, waked-up, walk, watch, water, want, wash, wear, wet, whip, whisper, whistle, wiggle, will, wipe, wire, wish, won't, wonder, work, would, wrap, wring, wrinkle, write.

Adjectives—Warm, well, wet, white, whole, wrinkled, writing, wrong.

W. Adverbs—Way, what, when, where.
Pronouns—Who.
Prepositions—With.
Interjection—Whoa.
X.
Y. Nouns—Yeast.
Adjectives—Yellow, yellow-ochre.
Adverbs—Yes, yesterday, yet.
Pronouns—You, yours, yourselves.
Z.

Proper nouns are not included with the rest of the vocabulary.

During the first year no proper names were spoken. The first proper name attempted was her own name, Elizabeth. This was first pronounced "Isbes," next "Isbe.," "Isbeth," "Lisbeth," and not until she was four years old was the name pronounced correctly.

During the three weeks preceding her second birthday she used the following words: Elizabeth, Net, Turner, Sis.—4 in all.

At her third birthday she used the following: Anna, Berry St., Claudie, Cloa, Clarence, College Ave., Mrs. Crowley, Dorothy, Earl, Effie, Ella, Floyd, Florence Hall, Mrs. Gardiner, Goshen, Greencastle, Harry, Herb, Mrs. Hill, John, Kermet, Lake City, Lena, Maude, Myrtle, Minnie, Pelsma, Mrs. Stephenson—28 in all.

At her fourth birthday the following proper names were used: Anna, Allegra, Bertha, Blanche, Bud, Chicago, Cloa, Carl, Claude, Mrs. Crawley; Dennis, Dorothy, Elizabeth, Ella, Emma, Eastern Star, Edward, Ethel, Floyd, Florence, Florence Hall, Friday, Fourth of July, George, Genevieve, Glen, God, Grace, Grand Rapids, Mrs. Gardiner, Greencastle, Hazel, Herb, Helen, Mrs. Hill, Indiana, Jackson Park, Jackson Ave., Jennie, Jesus, John, Katherine, Klass, Kermet, Kitty, Lake City, Laurence, Lincoln Park, Lord, Mary, May, Margaret, Masonic Lodge, Minnie, Maud, Monday, Mildred, Nellie, Noel, O'Conner, Raymond, Robinson, Rebecka Lodge, Saturday, Sunday, Mrs. Stephenson, Santa Claus, Thursday, Tuesday, Wednesday, Mrs. White, White City, Washington, Washington Park—78 words in all.

"E" also knew all the letters of the alphabet except Q, Y and Z. It was surprising how eagerly she sought to learn these arbitrary symbols. Attempts were made to teach her simple words, but she did not care to learn these, preferring the letters, and would insist continually that we tell her the name of a letter. She would spell out a word and then ask us to pronounce the word. She did not become interested in the words themselves until the last part of her third year. Technically speaking, the letters are the names of the symbols they represent, and grammatically may be called nouns. This would increase her total vocabulary, including proper nouns, and the twenty-three letters of the alphabet, to 1,379 words. This total still seems low when compared with Whipple's three-year-old boy who had 1,771, Jegi's two-year-old boy with 1,227, or Humphrey's two-year-old boy with 1,121 words. But it must be remembered that they had exceptionally bright children, and also included in their tables some grammatical variants, *i. e.*, inflections as: go, going, gone; comparisons, as tall, taller, tallest, and all compounds.

IV. Tables

Table (1) shows a progressive summary which needs no comment.

Table (2) gives a detailed list of children's vocabularies up to four years of age which have been published. Seventy-two are included. Dr. Tracy (51) summarized the vocabularies of about 18 children. Prof. Whipple (32) adds about 18 to the list of Dr. Tracy. Table (2) gives the total numbers of words and parts of speech.

Table (3) presents a complete summary of twenty-six vocabularies classified by years, and sixty-eight by groups. Parts of speech and per cent. are given. Lists which were not complete in Table (2) have been excluded. An attempt has been made to include *all* vocabularies which were not questionable, not merely the greatest. Yet we fear that the average is still very high, as most of the records are of precocious children.

Gale (8) states that the vocabulary of the average two-year-old child is 700, and 1,400 at 2½ years. This is too high. Our table for 14 children at two years gives 518 words; and at three years only 1,209. This is still too high for the average three-year-old, for our average at four years is only 1,149. Insufficient data exist at present. We believe that when more data are accumulated that "E's" vocabulary will be found not far from that of the average American child; for "E" is in every way a child of only average ability. She was not like Jegi's child, who at two years of age had outgrown Mother Goose Rhymes! Such exceptional cases as the child of Dr. E. Gates (17), who at the age of 21 months knew 11,000 (?) words, are of little practical value to the educator. We need more data from *normal* children. Again, it will be found that 2,000 words is not far from the number of words at the command of the average six-year-old child—*i. e.*, at the time he enters school.

1. The following Table presents a progressive summary of "E's" vocabulary in number of words and in per cents.

Parts of speech	First year		Second year		Third year		Fourth year	
	words	%	words	%	words	%	words	%
Nouns	7	70	212	56.0	406	59.8	730	56.6
Verbs	1	10	88	23.3	147	21.4	265	20.7
Adjectives			37	9.9	65	9.8	135	10.6
Adverbs	2	20	21	5.6	31	4.6	86	6.8
Pronouns			8	2.7	14	2.0	23	1.9
Prepositions			6	1.6	9	1.2	19	1.6
Conjunctions			1	.3	1	.1	5	.5
Interjections			6	1.6	8	1.1	15	1.3
Total	10	100	379	100	681	100	1,278	100

2. COMPARATIVE TABLE

Classification into Parts of Speech

Authority	Ref.	Age of Child	Total No. of words	Nouns	Verbs	Adj.	Adv.	Pro.	Prep.	Conj.	Int.
Hall	10	10 mo. B	3	1	1	—	—	—	—	—	2
"	"	11 mo. B	12	9	1	—	—	—	—	—	2
"	"	12 mo. B	24	19	2	—	—	—	—	—	3
Moore	21	12 mo. B	6	6	—	—	—	—	—	—	—
Perez	44	12 mo. B	10	6	2	2	—	—	—	—	—
Tracy	51	12 mo.	10	6	—	2	2	—	—	—	—
"	"	12 mo. B	8	7	—	—	1	—	—	—	—
Pelsma	—	12 mo. G	10	7	1	—	2	—	—	—	
Mickens	20	12 mo. G	3	2	—	—	—	—	—	—	1
Hall	10	13 mo. B	38	30	3	1	—	—	—	—	4
"	"	14 mo. B	58	44	6	3	1	—	—	—	4
Mickens	20	14 mo. G	15	13	—	—	1	—	—	—	1
Hall	10	15 mo. B	106	84	8	7	3	—	—	—	4
Mickens	20	15 mo. G	27	21	—	3	2	—	—	—	1
Hall	10	16 mo. B	199	141	28	17	5	2	1	1	4
Mickens	20	16 mo. G	44	36	1	4	2	—	—	—	1
Jegi	13	16 mo. G	75	50	13	3	4	—	—	1	4
Hall	10	17 mo. B	232	156	37	20	5	3	5	1	5
Tracy	51	17 mo. G	35	22	4	2	4	—	—	—	3
Mickens	20	17 mo. G	77	66	4	4	2	—	—	—	1
Jegi (Cary)	13	18 mo. B	60	36	16	3	3	—	—	—	2
Watson	8	18 mo. G	74	57	3	6	2	—	—	—	6
Mickens	20	18 mo. G	116	97	9	7	2	—	—	—	1
Dewey	6	18 mo. G	144	76	41	2	9	9	—	—	7
"	"	19 mo. B	115	69	24	13	3	—	—	—	6
Mickens	20	19 mo. G	142	111	19	8	3	—	—	—	1
Tracy	51	19 mo. B	144	78	36	19	4	—	1	—	6
Mickens	20	20 mo. G	187	139	24	16	4	1	2	—	1
Tracy	51	21 mo. G	177	148	14	6	5	2	2	—	—
Mickens	20	21 mo. G	216	150	22	20	5	1	2	—	10
Tracy	51	22 mo. G	69	37	9	4	8	1	—	—	1

2. COMPARATIVE TABLE—*Continued*

Authority	Ref	Age of Child	Total No. of words	Nouns	Verbs	Adj.	Adv.	Pro.	Prep.	Conj.	Int.
Mickens	20	22 mo. G	281	185	49	27	11	2	4	1	2
Tracy	51	22 mo. G	27	16	3	3	2	—	—	—	3
Mickens	20	23 mo. G	352	226	70	31	15	3	4	1	2
Tracy	51	23 mo. G	136	95	16	12	7	3	—	1	2
Moore	21	2 yr. B	475	306	92	38	14	11	Miscel.		14
Holden	11	2 " G	483	285	107	34	29		"		28
"	"	2 " G	399	230	90	37	17		"		25
"	"	2 " B	173	113	30	13	6		"		11
Humphreys	12	2 " G	1121	592	282	113	56	35	28	6	9
Tracy	51	2 "	263	168	52	22	7	7	4	—	3
"	"	2 " B	139	95	21	6	4	1	—	—	12
"	"	2 " G	285	187	46	30	11	3	5	—	3
"	"	2 " G	36	16	7	4	3	3	—	—	3
Gale	7	2 " G	436	232	99	49	27	12	8	1	8
"	"	2 " B	115	69	17	17	8	—	2	1	1
"	"	2 " G	578	293	129	70	38	27	13	6	2
Jegi	13	2 " G	1227	727	238	139	54	21	24	4	20
Gale	7	2 " G	400	247	82	36	23	4	4	—	4
"	"	2 " B	729	417	171	68	36	10	9	—	17
"	"	2 " G	741	395	159	97	27	11	4	—	49
"	"	2 " G	783	555	103	70	27	12	4	—	12
Mickens	20	2 " G	427	256	94	40	24	6	4	1	2
Pelsma	—	2 " G	379	212	88	37	21	8	6	1	6
Mickens	20	25 mo. G	507	302	101	53	33	8	6	2	2
Tracy	51	25 mo. G	250	196	28	15	5	3	3	—	—
Mickens	20	26 mo. G	587	335	121	60	47	11	8	2	3
Tracy	51	27 mo. G	171	113	27	16	10	2	1	1	1
Mickens	20	27 mo. G	675	382	139	66	62	11	9	2	4
Tracy	51	28 mo. B	677	422	136	69	23	9	12	2	4
"	"	28 mo. G	451	287	89	29	19	13	6	1	7
"	"	30 mo. B	327	132	87	42	31	18	12	3	2
Watson	8	30 mo. B	480	257	124	50	21	10	10	6	2
Gale	8	30 mo. G	769	444	149	103	30	19	11	5	8
"	8	30 mo. B	1432	797	310	154	75	33	25	10	28
"	8	30 mo. G	1509	913	310	157	61	16	16	—	36
Salisbury	23	32 mo. G	642	350	150	60	32	24	17	4	5
Gale	7	3 yr. G	1176	675	238	143	53	33	17	7	10
Whipple	33	3 yr. B	1771	993	391	209	89	33	24	8	24
Pelsma	—	3 yr. G	681	406	147	65	31	14	9	1	8
Mateer	19	4 yr. B	1020	578	211	125	51	21	4	12	18
Pelsma	—	4 yr. G	1278	730	265	135	86	23	19	5	15

V. COLOR VOCABULARY

Sanford (24) and Wolf (36) state that the average educated adult uses only about 25 color terms; and many five-year-old children are limited to four or five colors. The average two-year-old child uses only one color term. Preyer (45) states that his child knew no color terms at twenty months, and only red, yellow, black, violet and brown at

3. SUMMARY

Years	No. of Children	Total No. of words	Nouns		Verbs		Adj.		Adverbs		Pronouns		Prep.		Conj.		Int.	
			words	%	words	%	words	%	words	%	words	%	words	%	words	%	words	%
I	6	68	51	75.0	5	7.4	4	5.8	5	7.4								
II	15	7,658	4,461	58.3	1,588	20.7	798	10.4	366	4.8	160	2.1	115	1.5	20	0.3	151	1.9
III	3	3,628	2,074	57.4	776	21.5	417	11.3	173	4.8	80	2.2	50	1.3	16	0.4	42	1.1
IV	2	2,298	1,308	56.9	476	20.7	260	11.3	137	6.0	44	1.9	23	1.0	17	0.7	33	1.5
0 to II	50	10,890	6,707	61.5	2,063	19.0	1,043	9.6	483	4.5	187	1.8	136	1.3	26	0.2	241	2.1
II to IV	18	14,403	8,312	57.9	3,023	21.0	1,551	10.7	759	5.3	301	2.1	209	1.4	71	0.4	177	1.2
0 to IV	68	25,293	15,019	59.4	5,086	20.1	2,594	10.3	1,242	4.9	488	1.9	345	1.3	97	0.4	418	1.7

thirty-four months, and was not always sure of green and blue. Sanford reports one child as follows: At seventeen months, none; twenty-four months, blue, brown and pink; thirty months, black, white, red, green, blue, brown, pink; forty months, black, white, red, green, blue, and yellow.

"E" used no color terms at twelve months of age. Her first color term was blue in her eighteenth month. Her mother had put a blue dress on her. This greatly pleased her and she began saying "blue dress" in imitation of the expression used by her mother. By her twenty-fourth month she could distinguish the following colors and name them correctly: blue, green, red, white, and yellow—5 in all.

As her mother frequently worked with paints—painting felt and china, "E" soon became acquainted with color terms —pure colors, shades and tints. At her thirty-sixth birthday she used correctly the following terms: blue, black, brown, dark, green, gray, light, pink, red, white, yellow—11 in all. This number steadily increased until at her forty-eighth birthday she was using: blue, black, brown, chrome-yellow, dark, dark-blue, dark-brown, green, gray, light-brown, orange, pink, purple, red, tan, white, yellow, yellow-ochre — 18 in all.

This is greatly in excess of the number used by the average child, but is due to her unusual opportunity to associate almost daily with these colors. When her mother was painting she also desired to do so, and was very early given a brush and water colors.

VI. Number Vocabulary

Whipple (32), Mateer (19), and a number of other writers attempt to justify themselves in inserting "fifty," "ninety," "one thousand," etc., in their list of words. The child may use them in his speech but certainly cannot comprehend their value sufficiently to justify their addition to the list of words in the vocabulary. No numbers have been included in "E's" list above "six," for the same reason that words used in her nursery rhymes have been excluded—they have no content in the child's mind, not even magnitude. Number expresses relation. When "E" was asked which she most desired, 15 marbles or 20 marbles, she would hesitate a moment and then choose at random, showing that she did not comprehend any mathematical ratio.

At twenty-four months of age she could count to five, and by various tests made showed that she understood the numerical relations of "one," "two," and "three." It was with great difficulty that she was taught to count beyond five. Doubtless the "plateau stage" was here operative; but by her third birthday she could count objects to fifteen; and understood the integral relations of four. She would name four objects when presented to her without counting them. If asked how many two and two made, she would answer "four." She knew all these integral combinations without their concrete application; in fact, she preferred not to use apples or blocks, though her results were equally accurate with concrete application.

When forty-eight months old, she could count correctly twenty objects, and very seldom made an error. However her concept of number relations ended with "six." She knew that six was more than five and knew that it was *one* more. She could give all the integral combinations which made six. If told that there were six apples on the table and that four were removed, she knew that two remained. Concrete application seemed to be no aid to her. She knew the correct result as readily when asked to tell how much three and three would make, as if asked how many apples three apples and three apples would be. And as far as it was possible to determine she did not imagine apples or any other objects. It is possible, however, that she had repeated the answer over so often that the result was associated with the problem,—a mere memory process rather than an abstract logical concept of their quantitative relation; just as the child who learns that $6 \times 7 = 42$, without having formed any mental image whatever —merely a matter of associative memory.

This may, however, throw an interrogation into the theory usually advanced by educators that all number work in the first few grades of school should be concrete.

In comparison: A. Stevenson (27) reports a case in which the child could not use number terms beyond *two* until nearly in his fourth year. Any number beyond *two* was *nine*. Jegi's child (13) at two years of age counted to *twelve*, but could use only *one* and *two* correctly. Whipple's three-year-old boy counted correctly to *thirteen*, and could apply correctly numbers from *one* to *four* (33).

B. Development

I. ORIGIN OF SPEECH

Settlement of this controvertible problem will not be attempted; neither shall we summarize present theories, nor advance a new. Philologists have long recognized the similarity between the development of the speech of the child and the language of the race. That children can invent a language of their own is now generally conceded by psychologists. Color is given to this view by examples cited by Dr. Hale (Romanes (47), Chamberlain (33), Stumpf, et al.). Children, however, have this advantage over the race—an example has been set for them, and through the process of evolution have come into the world with a richer inheritance of speech organs and speech centres than primitive man. Still this process may be the same in kind if not in time. Parents imitate children and thus put meaning into their "lol" words. This aids materially in shortening the time.

The "Divine origin theory" made its exit at the advent of the theory of evolution. The "Onomatopoetic" (Darwin), Ejaculation (Whitney), and the "ding-dong" (Max Müller) theories have each much in their favor. That some words are acquired in each of these ways may be corroborated from the vocabulary of every normal child. But these theories fail to explain how the race acquired the power to use its imitations and associations for speech purposes. Much might be said in favor of Ludwig Noire's theory that a man thinks because he speaks, rather than that he speaks because he thinks. But why not a parallel development? Why must one be necessarily the sequence of the other?

A child's early sounds and babbling are not directed with a conscious purpose to convey thought. (Wundt (54)). But when the child cries "ma" and "da," the proud mama and daddy feel flattered and imagine the baby is learning to speak, come to it and joyfully repeat the sound, minister to its wants, and thus associate themselves with the sound uttered. The child consequently by its usual habit of repeating a pleasing sound, expands "ma" to "mama," and "da" to "dada." These early sounds are not uncommon in the animal kingdom —example, the lamb. "Ma, da, la, ta" become root words in many languages (Chamberlain (35)). Again, the child is a product of his social environment. His emotional nature is not unlike that of the adult. His social environment aids and stimulates him in expressing his social needs. The development of language in the human race is synchronous with the advent of the gregarious instinct. Mutual sympathy and similar emotions led to the expression of this common feeling. Later, intellectualization on the part of the child and the race permitted ideational processes resulting in abstract language or language proper.

Observation of "E" illustrates the foregoing processes and stages. This will be elaborated under II, 1, and 2, sufficiently; a similar statement at this point would be redundant.

II. GROWTH. 1. STAGES

a. *Reflex.* Psychologists in general agree that the different stages of acquiring a language may be to a certain extent chronologically classified, though all stages overlap irrespective of the basis of classification. There is, too, a general agreement that the first cry of an infant has no language significance. Preyer (46), Perez (44), Moore (21), Trettien (31), Sully (50) and others agree that it is a cry of pain, rather than "a cry of indignation and of wrath" (Kant), or "a lament over the sin and misery of this world." How may we be sure that it is even a cry of pain? Preyer (46), Shinn (49), and Genzmer state that the newborn child is insensible to the prick of a pin, application of ice-cold bodies to the skin, and even goes to sleep under a minor operation. "New-born children without any brain at all cry out" (Preyer (45)). Some instead of crying, sneeze (Darwin). Preyer (45) contends that though a child is insensible to local peripheral stimulation, pain may come from a feeling of general discomforture, *i. e.*, a change of temperature; and that the expression on the face of a child at birth showed that it was in distress. We have no right to interpret expressions of a child as resulting from sensations from the standpoint of adult psychology. Comparative psychologists certainly do not grant us this privilege. Since children without brains cry out, we may do well to look for some other cause. Sigismund says that the sound is made by the air rushing into the lungs. This looks logical. Peripheral stimulation affecting a partly developed nervous organism produces a tension of the vocal chords, and the inrushing air produces the cry. In the case of "E" it was a distinct wail which continued for a few seconds, and seemed rather mechanical, like a toy which gives a sound when a spring is touched.

Neither have the profuse spontaneous gestures any language significance at this period. The gestures are not physical expressions indicative of psychical activity. The child has no thought or emotions to express (Preyer (46), Tracy (51)). His senses have not yet awakened. He is blind, deaf and insensible to other local stimulation. This stage may be adequately termed the Reflex stage. (Lukens (17), Kirkpatrick (15)). For the first few weeks the vocal expressions and physical gestures result from external stimulation, and not from mental initiative. At this stage the gestures are profuse and undirected. As every impression must have an appropriate expression (Judd (38)), the sensory stimulus which the child receives is diffused when it reaches the central nervous system and sets into activity the muscular phenomena observed in every child. These gestures are meaningless as far as an expression of inward emotions or concepts. A pleasurable or painful sensation may cause violent dangling of feet and arms, but it is neither directive nor differential.

b. *Cry and Gesture Stage.* After the first few weeks the cry is differentiated and the gesture directive, and characteristically expressive. This is the period which has been poetically and likewise scientifically expressed as, "a crying in the night, crying for the light, with no language but a cry." Miss Shinn (49) becomes quite poetical when observing the cry of her *niece*, and proceeds: "Oh, cry of the baby in the night, nightingale for father and mother." Perhaps. I suppose I am rather prosaic; but to me it resembled more nearly a fire-alarm—a hurrying to and fro through cold halls, seeking for mislaid paregoric bottles, etc., etc.

M. Egger states that the voices of children in earliest infancy are not characterized by an individual timber. This is stoutly denied by Dr. Laurent and Perez (44). Tracy (51) states that the cry at first is a reflex squall without expressive modulation or distinctive timber. The same cry serves to express all sorts of feeling. "E's" mother could easily distinguish her cry from many other infants after the first week. At the end of the second week "E's" cry had two inflections —one for comfort and one for discomfort. At the end of the fourth month these cries were sub-modified, for multiple wants desired expression. Preyer (46) states that the word "atta" had at one time eleven different meanings which were expressed with modification and appropriate gesture. The cry of hunger is one of the first to manifest itself. M. Taine (29) says that at this period "all shades of emotion, wonder, joy, willfulness and sadness" are expressed by difference in tone. Sully (50) states, "This cry gradually differentiates itself into a rich variety of expressions of hunger, cold, pain, joy, etc." "The cry of pain," says Leonard, "is generally longer continued than the cry of fear." Hunger is often expressed as a prolonged wail and the cry of fear as being more abrupt and explosive. Lukens (17) states, "the long drawn-out cry of hunger, the subdued and monotonous sleepy cry, the short, high-pitched yell in response to some physical want, and the loud cry of anger, seem pretty well characterized." Mrs. Moore (21) records that "we can distinguish the sounds of hunger, sleepiness, anger, and joy at four months of age."

"E's" cry of pain was a sharp, long, piercing cry. Her hunger cry at this period was a repeated vocal utterance "äuă" and not as shrill as the cry of pain. Contentment was expressed by a droning coo. Anger, or general discontent, or "spunk" was noticed at the end of the fifth month. This cry was harsh, somewhat guttural, and otherwise characterized by a violent gesticulation of hands and feet, with extreme rigidity of the rest of the body. The motion of the hands and legs appeared to express repulsion. This manifestation has changed but little during her four years of life. What Sully calls "fear" was expressed by an attempt to shrink away, the corners of the mouth were pulled down and short broken cries followed. All these physical manifestations are indicative of emotional conditions. Negation was expressed by "E" as early as the third week, by a turning away of the head when refusing more food. Desire for objects was indicated by an extension of the hands in her 18th week. These expressions should be classed as the rudiments of gesture language, which precedes vocal expression as a means of communication (Judd (38)).

c. *Babbling*. During the thirteenth week "E" began to modify her heretofore purely vocal and labial sounds by lingual sounds. She chanced to discover that agreeable sounds could be made by wiggling her tongue. She seemed to take great delight in lying on her back and singing "nannannan" and alalalala, etc. Both the melody and the muscular stimulation produced a pleasing sensation. This meaningless babble cannot be called speech. That it is entirely free from imitation is not beyond all doubt; but the evidence points to the fact that all normal children will produce similar sounds (Sully (50)). It doubtless presents a chance discovery; it stimulates the child agreeably and the sound is repeated again and again, frequently with considerable modification in pitch and intensity. Mrs. Moore (21) observed that by the close of the fourth month her child had produced nearly all the elementary sounds. The child begins with the vowel sounds ; then appear the consonants in combination with vowels (Meumann (41), Perez (44), Shinn (49), Preyer (46)). Since "speech is the use of a sound intentionally as the sign of an idea" (Sully (50)), this babbling is not speech; for we cannot believe that an idea accompanies all this babbling. Yet true language sounds significant if ideas develop from this spontaneous expressive articulation. Buckman (3) puts much confidence in what he calls the ma-da-ta-la series. Muscular co-ordination and control of tongue and lips is here so far perfected that true language may be said to appear in the next stage, viz.:

d. *Imitation*. This stage, according to Tracy (51), embraces the second six months of the child's life. The simple imitation is observed quite early, conscious imitation appears first between the seventh and ninth month (Preyer (45)). Gestures, too, are now consciously imitated; are no longer mechanical, but result from an effort to experience how it "feels" to perfrom an act, or see if he, too, can do it. "The child desires the experience which comes from performing the thing he sees others doing. He wishes to increase his experience," (King (39)). The expression of satisfaction of a child at the success of his efforts leaves little doubt as to his purpose. His first successful efforts at real articulation come during this stage. The child learns the language of his parents and the peculiar characteristic accents are to some extent acquired. That the child attaches a definite meaning to his articulations results greatly from his parents imitating him and associating a definite percept with the sound. (Wundt (55)). "E" would hear a chick and she would say "peep" or more correctly "ē" and then "coo" at her success with a jumping motion of the body indicating satisfaction. She would listen to the clock and say "ic-ic," or attempt to repeat many of the elementary sounds in imitaion of her parents. "E" imitated many words quite perfectly; would say mamma, papa, boy, dog, with a distinctness highly gratifying to her parents, who were quite elated over the linguistic progress of their first offspring, when the next stage appeared and, in the language of Shakespeare, "Oh, what a fall was there."

e. *Plateau Stage.* With apologies to Bryan and Harter, (Psych. Rev., Vol. VI, p. 346), we believe the above term expresses adequately this period. It represents a time of accumulation and co-ordination, of assimilation and adjustment. There is interpretation with little verbal expression. Progress is made, but very slowly; This stage usually appears between the ninth and fifteenth month of the child's life. Frequently the energy seems to be directed into other channels, viz.: teething and learning to walk. If the child has already learned to walk, or acquired this ability in a day (Jegi (15)), this plateau stage may not be very pronounced. In fact, it is frequently so shortened and modified that it is not readily observable (Jegi (13)). In other instances it is exceedingly pronounced. Lukens (17) cites a very interesting case. Such stages are not infrequent in other fields of psychical and physical adjustments (Judd).

After "E" used the words boy, dog, papa, mamma, with various application, but with rather distinct enunciation, about the tenth month, there was little progress in articulation until about her sixteenth month. "Boy" meant almost anything from a cow to a fire-shovel. If she saw a cat she would say "boy." If she saw a house it was "boy." The inflection, however, varied. But it could not well be observed whether the same inflection accompanied similar objects. Later the word "dog" or rather "da" was most favored, and at least every moving thing was "da." By the end of the twelfth month "boy" had become restricted at least to animate objects; "dog" was seldom applied to any other animals but a yellow hound, a billy goat and a pet brindle cow. The remaining eight words she used have been explained. Gestures were freely indulged in, and she would turn her head toward many objects mentioned to her, and would pick up objects from the floor if told to do so; but she could not be coaxed into attempting to pronounce them. A few words as "doll" and "bye-bye," which she had been accustomed to pronounce quite distinctly, she no longer attempted in her twelfth month. These words were not regained until her fifteenth month. She learned to walk in her twelfth month. This may have aided in directing her energy into another channel, but it does not explain the whole problem. She was on the "plateau" of development. Trettien (31) states that a child, "F," at eleven months had 80 words, which she had securely associated with ideas, while her spoken vocabulary was very limited.

f. *Expression.* When psychical and motor adjustment of speech centres and organs is nearing completion, the child makes rapid progress in acquiring its native tongue. Trettien's (31) child "F" at eighteen months made very rapid progress, imitating nearly every word proposed to her. Mrs. Hall (10) states that her child in its sixteenth month acquired 93 new words, an increase of 45 over the previous month. Mickens (20) states that at 22 months of age his child acquired 70 new words, an increase of 46 over the previous month. Trettien (31) writes, "Felix was very backward in learning to speak. Suddenly, one evening, it was as if the Holy Ghost had descended upon him and had poured into him the gift of speech; for he repeated everything that was spoken to him very correctly." These few examples clearly show that when the "plateau" stage has passed rapid progress is made. Like learning to walk, this ability may be manifested in a day (Kirkpatrick (40), Jegi (13), Lukens (17)). "E" made little progress until her eighteenth month; then she seemed to take special delight in imitating nearly all words she heard. She would pronounce words often which surprised us greatly, not remembering when she might have heard them. This was her last stage. She was now in line to become a full-fledged linguist.

2. METHOD

More important than the stages, is the knowledge *how* the child gets its vocabulary. The method is difficult of analysis; (1) in the beginning it must be wholly by external observation, (2) later this may be supplemented by a more subjective process of questions and answers, and experimentation. But this requires the following precautions suggested by Meumann (41): (1) The child's vocabulary must be interpreted in the psychology of the child. (2) The interpretation of the words must be studied from the standpoint of genetic psychology. (3) No abstractions occur in his vocabulary (this point is not conceded by all). (4) Observations should be extended to the fifth or sixth year, as these latter years aid in interpreting the first few years. The first precaution cannot well be over emphasized. Adults are apt to "read into" the child's activity many qualities from their own viewpoint.

a. *Reflex Expression*. Confining ourselves to vocal expression, the first cry of the child is reflex. It is not emotional. "It seems altogether impossible that the expression of the new-born infant, however violent, can have any emotional significance." (King (39)). His cries come from external stimuli or from internal organic adjustment. The cry is not of discomfort; it is instinctive; it is but the adjustment of "impression and expression"—a matter of co-ordination of stimuli and motion, not emotion.

b. *Spontaneous Emotional Expression*. The first method is the precursor of the second, yea, more, a determinant. Gradually the child becomes conscious of the spontaneous, impulsive, instinctive activity. The machinery is being adjusted; "A living, conscious automation," as Miss Skinn (48) interprets it. Sensations are inhibited, cognized, and directed into definitely established channels. The efficiency of this adjustment gives a general emotion of pleasure; when ill-directed or momentarily inhibited there is a conflict and the emotion is pain. The expression of fear often observed may be only the maladjustment, or the necessity for new adjustment of stimuli and response. Fear then would not be the result of heredity or education as Preyer (46) notes, but the kinæsthetic memory of the prior emotion resulting from a former mal-adjustment, or rather a tendency to check instinctive responses to social stimuli. King (39) believes that a child is born with a small number of motor co-ordinations of an instinctive type, and any stimulus may be diffused and find expression in a variety of avenues—joy, fear, etc., and the direction the stimuli take is dependent largely on what channel has been previously used. But the conflict does not always remain painful. The child early differentiates the emotions. The conflict may then manifest itself in wonder, surprise, joy, etc. Out of this emotional attitude of response arises the first exclamation of articulate language. His vocal expression of these emotions may be limited to a few syllables, for vocal expression is dependent on physical adjustments which have not yet sufficiently matured to respond to a great variety of inter-reactions or combinations of sounds. When the child points to an object and says "da" (the same in many languages) it is, probably, in its inception merely an interjectional expression of the "faint shock of wonder produced by the appearance in the visual field of a new object" (Sully (50)). As fast as the child can adjust his vocal organs to his emotions we have various expressions. These are at first more related to singing than talking (Sully (28)). This may have been true of the race (Darwin).

c. Volitional Expressions. When a child becomes conscious of its activity and able to direct expressions at will, he can make a choice. Perez (44) states that it is manifest at first simply in the substitution of one tendency for another resulting from conscious attention to reflexive activity. James says that this cannot be until the child is capable of memory images, Wundt (Menschen-und Thier-seele), on the contrary, maintains that attention is present in the most mechanical movements. The child remembers the experience of former activity and desires again to experience this sensation and he says "yem" when he desires to get down for a buggy (Grossmann). "E" very early acquired the word "down" and "uppaday" when wishing to get down from or up on my lap.

She said "ī" when she desired water and "ĕ" when she wished to nurse. At the age of 27 weeks Sully's (50) little boy said "o" for the expression of pleasure and "a" for surprise. Darwin's boy said "mum" when it wished something to eat. These first articulations are all expressions of emotions (Meumann (40)) and are consciously directed. They may be designated as "wish-words" or "feel-words."

d. Imitation. This method was partly outlined when discussed under (II-1-d). Preyer (46) writes: "Imitation is without doubt the first and most important factor in the learning of language by the individual." Sully (50), says "Learning the mother tongue is essentially a kind of imitation." When the child has developed his muscles by promiscuous kicking and dangling, he gets up and walks. When he has been babbling for some time and developed and co-ordinated his speech apparatus, he begins to "talk"—begins to imitate sounds heard and associates with this sound definite mental concepts. He has developed the power of active attention sufficiently to enable him to reproduce sounds spoken in his presence. "He imitates the sounds made by animals and inanimate objects" (Preyer (44)): more than this he will at this age (twelve months) attempt imitation of physical expression of emotions. When sounds and expressions are imitated, the child associates a meaning not only with the auditory sensation, but the kinæsthetic as well. "E" exhibited no abnormal peculiarities in this respect. She observed carefully gesture and articulation of her parents, would repeat what she heard, and sing when others sang.

e. Associative-Reproduction. When the child begins to intellectualize (Meumann (40)) he begins to analyze and differentiate. "Papa" no longer stands for the expression of an emotion but for an idea. Certain attributes are recognized as belonging to a definite object. "Papa," at first, was an expression of pleasurable emotion which was uttered when father came home; or unfortunately it might be the expression of a painful emotion. Now, "papa" represents an intellectual process—an ideation. At first "papa" has attributes in common with other objects—all men are "papa." Perhaps the child may be capable of more accurate discrimination than usually credited with when he calls men papa, but since his vocabulary is limited, he may find it convenient to so express the classification just mentioned. The word "papa" most nearly expresses his concept. Meumann (41) thinks that the child does not form general concepts until about four years of age, and it is doubtful whether distinct classification appears much earlier, but the associative process is developed much earlier (first six months). When he acquires the word "man," a concept distinct from "papa," he at least begins analysis. "Man" now becomes a general concept and "papa" is again applied to a specific object. But *this* "papa" is an altogether different "papa" from the former two. The first was a mere percept. The second a concept now expressed by "man;" the last a concept, though doubtless very limited in its application.

When the child imitates he reproduces but there is no *associative*-reproduction. At first they are "pennies," then some become "white pennies." "E" saw a duck and said "quack." The duck is in a latticed box, and the box is also "quack." She found the picture of a goose in a story book, and the book henceforth became a "quack" book. When in her third year she had observed her father "run" rats in a "maze" at the psychological laboratory, his co-worker, a fellow student, was always present on such occasions. When "E" would meet this man on the street she would always exclaim: "There comes the rat-man." She had been told that a certain big yellow dog had been found at a fire. She often begged her father to get her a "fire-dog" Lather she would call "shave;" would say "hatchet that for me," meaning, "chop that with a hatchet." The teacher who collected the pennies at Sunday school became her "penny-teacher," and the candy secured from an automatic street-vending machine, was called "punch-candy."

Associations are easily formed. The child is a poet. He can see likeness and similarity where the adult observes only differences and contrasts. Associations are primarily spatial, although they are at times synchronous, rarely attributive in the first few years. Inferences are rarely logically drawn before the age of four. Induction is prior in development to deduction; yet who is the psychologist so bold as to claim to have fathomed the process of a child's mind? When "E" was four, one day while passing along the street she noticed a tree which had been cut. She asked if George Washington lived there. She had been told the story of the "hatchet" in her kindergarten, but had never mentioned it in her home. Was this deduction or mere association? Frequently in attempting to read the efforts at psychological analysis of the mental activity of an infant child we are reminded of the answer given to the question of old Polonius: "What read you, my lord?" "Words, words, words!"

f. Invention. If children were forced to live alone would they develop a language of their own? "Yes" say Judd (38), Tanner (52), Sully (50), Tracy (51), Romanes (47), Taine (29), Preyer (46). "No" say Wundt and Idelberger (55). "Perhaps" say Meumann (41), Compayre (37), *et al.* Nearly all admit that the child is normally not permitted to exercise his inventive genius to a great degree, also that too much credence cannot be given to the stories of Dr. Hale and others. Experimentally we are much in the dark, as yet. That normal children never invent words, both sound and meaning, is difficult to disprove, but without imitation there would be little resemblance to a Yankee vocabulary. Preyer (46) states that "after sound and sense is once established through imitation," the child then freely invents new combinations, "although to a more limited extent than is commonly assumed." Much of the disagreement here is the result of the definition "inventing articulate speech." Methods of invention are unique and varied. "E's" invented words may be roughly classified thus:

(1) Borrowed from adults but with wrong form. A pure creative element is not found in child speech (Meumann (41)). The influence of the adult begins at birth. Infants who early associate much with their parents learn to talk sooner than those who do not have this privilege. Since examples of invention might be multiplied in profusion, illustrations will be drawn only from our own observations. In her fourth year she used the word "thernly." An object was not a "thernly" bit nice. This doubtless came from certainly. She often told us not to "mickle" her things. This may have originated from *mix up* or *muss up*.

(2) Proper words with wrong meaning. This introduces the disputed subject of classification of parts of speech from a child's standpoint. Miss Shinn (49) states that nouns and verbs are always being interchanged. "E" used "hatchet" for "chop;" "smoke" for "pipe;" "corns" she called "popcorns." She at first said, "sugar-bunch," then "sugar-hump," next "sugar-lump." She frequently said, "Don't tell me any more questions."

(3) Onomatopoetic sounds. Every normal child will naturally call a dog a "bow-wow," a clock a "tic-tic," and a cow a "moo," etc. "E" imitated three sounds very accurately, and other similar sounds without much practice. Many of the sounds imitated never became embodied in her vocabulary. Much of the imitation is for the pleasurable emotions furnished.

(4) Onomatopoetic sounds otherwise applied. Through association these sounds are applied to other objects. "E" called a latticed box a "quack" because the ducks within had been so designated.

(5) Ejaculations. Natural grunts, and other vocal utterances are frequently attached to objects, or actions. Example, "ouch," "boo," "oh," "ōō," etc. Emotions are often thus expressed.

(6) Construction from "lol" words. Children not infrequently construct some original word from their early babbling sounds. Many of their first words are such. Some contend that the child attempts to imitate here, but is unable to reproduce the sounds he hears. Should this always be true, it fails to explain why he continues using it after being able to articulate more distinctly. "E" used "I" for water, "uppeday" for up. "Da" meant "daddy," "there," and many other ideas. "Rolabola," is still being used.

(7) Combinations. All sorts of combinations are made by the average child; thus coining new words. He sees similarity between quite incomparable objects. "E" seeing a small coffee-grinder, called it a "coffee-churn." Candy obtained from automatic slot-machines was called "punch-candy." The teacher who gathered up the pennies at Sunday school became her "penny-teacher." A boiled egg was a "cup-egg;" a fried one a "plate-egg." A sack with holes was a "hole-sack," a yellow dog, a "fire-dog;" a conductor, a "ticket-puncher."

(8) Formation of *regular* variants. Irregular inflections of verbs and adjectives are difficult for the child. "E" invariably said "Bleeded," "hurted," "rund," "seed," "gooses," "tooths," and the like. These may not be pure inventions, but they are formations which the child has not heard, but creates from a knowledge of the laws of regular inflections.

3. SYSTEMATIC CLASSIFICATION OF PROGRESS MADE IN DIFFERENT PARTS OF SPEECH

The following table shows the progress made in each subdivision of speech. It is self-explanatory. It may be interesting to observe that not all the words which appear one year are found in the next.

All of the first year words appear in the second.

5 nouns, 4 verbs, 1 adjective, 1 adverb, and 1 interjection found in the second year are not found in the third.

24 nouns, 2 verbs, 1 adjective, 1 adverb, 1 preposition, and 4 interjections found in the third year are not found in the fourth.

All of the second year words appear in the fourth.

"Looking-glass" in the third becomes "mirror" in the fourth. "Night-drawers" in the third becomes "night-gown" in the fourth. "Sew" is found in the third, but "sow" in the fourth. "Teeth" is found in the third, "teeth" and "tooth" are found in the fourth. These illustrate some of the changes continually going on.

Gale (7) records the following summary: 35 nouns, 16 verbs, 4 adjectives, 1 adverb, which were found in "Ruth's" vocabulary at two years of age and not found at three.

TABULATION

	Nouns				Verbs				Adjectives				Adverbs			
Age	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Total	7	212	406	730	1	88	147	265		37	65	135	2	21	31	86
A		7	9	10		2	3	3		2	3	8		4	4	11
B	1	28	48	68		8	17	19		4	10	14		4	5	7
C		26	50	83		10	14	19		1	3	8		1	1	2
D	2	9	14	32		6	12	10		2	3	8	1	1	1	2
E		4	8	18		1	2	3		1	1	4				4
F		12	17	28		5	7	12		3	7	9			2	4
G		8	12	18	1	3	6	7		2	3	7			1	4
H		9	18	36		2	8	15		2	4	5		1	1	3
I	1	2	7	9		3	3	4						1	1	1
J		2	3	6		1	1	2								1
K	1	4	8	11		2	3	5								1
L		6	15	28		4	6	13		2	4	9				3
M	2	12	18	38		2	3	15				5				3
N		7	10	19			1	4		2	2	7		2	3	4
O		2	6	8		1	1	3		3	3	4		3	4	7
P		17	43	71		6	13	20		1	2	4				2
Q		1	1	3		1	1	1							1	2
R		7	14	29		4	6	11		1	2	5				2
S		24	56	110		9	17	51		2	7	12				5
T		17	29	55		9	10	16		6	8	15		2	3	8
U		2	2	3		2	2	6				1	1	1	2	2
V		1	3	4											1	1
W		5	15	42		7	11	26		2	2	8		1	1	4
Y				1						1	1	2				3

III 1. PRONUNCIATION

Indistinct articulation may result from the following causes: (1) Undeveloped organs of speech. A child sometimes does

TABULATION—*Continued*

	Pronouns				Prepositions				Conjunctions				Interjections			
Age	I	II	II	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Total		8	14	23		6	9	19		1	1	5		6	8	15
A								4		1	1	1				1
B							1	3				1		1	1	2
C																
D																
E																
F								1								
G																1
H		2	4	5										1	2	3
I		2	2	2			1	3				1				
J																
K																
L																1
M		3	3	6												
N																
O				1		3	3	4						3	4	2
P																
Q																1
R																
S														1	1	1
T			2	4		2	2	2				2				2
U			1	1			1	1								
V																
W				1		1	1	1								1
Y		1	2	3												

not articulate correctly because of lack of proper co-ordination of his vocal apparatus (Tracy (51), Preyer (46)). His speech centre in the cerebrum is yet undeveloped. He is unable to manipulate the tongue, vocal chords, etc., to produce the sounds he may hear. "The power to understand words is usually more quickly gained than the power to control the vocal apparatus" (Kirkpatrick (15)).

(2) Imperfect perception. Lack of discriminary power often prevents distinct enunciation. The auditory perception is undeveloped, and so the child says "ē" for eat, and "tention" for attention.

(3) Lack of memory. Frequently the child hears a word and sometime later when he attempts to pronounce it he omits part, modifies, or substitutes. This is true, not of the child alone, as the following caricature from an English paper illustrates. A lady walked into a judge's office and inquired if he was the reprobate judge, and said that her husband had died detested, leaving her two small infidels, over whom she desired to be pointed executioner. "E" one day said she wanted

a "Pantograph." This was the name of a local newspaper. She wanted a "pantograph with a horn." She had been visiting and had seen a phonograph.

(4) Imperfect example. Adults intentionally omit or slur certain sounds of words. The child reproduces only the accented portions, or substitutes more familiar sounds.

(5) Difficult combinations. Although certain elementary sounds or words may be distinctly uttered by the child, certain words or sentences containing these sounds are difficult to speak because of their combination. This tempts him to substitute another sound, as "wun" for run, "ting" for sing.

Noble (22) has given us a law of pronunciation, viz.: Correct pronunciation depends on close perception and knowledge of the motions necessary to produce sounds. Hence those sounds most easily articulated are labials and dentals; those most difficult, the gutturals and medials. Tracy (51) gives the following order, beginning with the most difficult.

r e th v sh y g ch s j e f t n q d k o w a h m p b

Merely considering the initial sounds, though this is not an accurate criterion, the least difficult sounds for "E" were:

Second year	K, B, S, P, T.
Third year	S, K, B, P, T.
Fourth year	S, K, B, P, T.

2. Development of Correct Pronunciation and Distinct Enunciation

Since imitation is the important source of a child's vocabulary, it surely behoves parents and others to permit children to hear only correct pronunciation and distinct articulation. That some parents still believe that a child can better understand its own "baby talk" than the "Queen's English," is too true. Accuracy in pronunciation can result only from imitating correct articulation. The practice of using "baby talk" when speaking to children is decreasing. Preyer (46) thus gives his opinion: "Children should never at the expense of their own natural development become entertaining playthings to pass away the time for adults." Children who associate much with adults make more rapid progress in correct pronunciation than those who associate much with other children. "E's" articulation has always been quite distinct, barring natural hinderances caused by undeveloped speech centres and muscles of articulation. At the age of four there is no "baby talk," and her enunciation is as distinct as that of the average adult, except that the "s" sound is still inclined to "th." Sit is "thit." But when shown where to place her tongue, the "th" disappears. The difficulty is found only in the initial "s."

IV. Sentence Formation

The first expressions of the child should be called sentence-words rather than "parts of speech." It is the *whole* of speech. When "E" cried "ma," it was a complete thought expressed. Meumann (41) calls it a wish-word. It is rather a "wish-sentence." As Waitz says, "The unit of language is not the word, but the sentence." And Romanes (47), says "every word was originally itself a proposition." Dewey (6) states that his child at twelve months of age had 17 words, but these were classified grammatically rather than psychologically. "E" at twelve months had 10 words (see table) with similar classification. Though unpsychological there is no better method. Trettien (31) states that such words (?) as "ma" (mother) should be called "interjectional - nominal - adjectival - verbal expressions. Dewey (6) says "door" is a nominal-adjectival-verbal-interjectional complex. This may be psychological and again it may be nonsense. Lukens (17) comes nearer being correct when he states that a child does not really use "parts of speech" in a grammatical sense until all parts of speech are used. "Parts of speech" are primarily grammatical. To quote Herbert Spencer, "Language was made before grammar." As with the race so with the child, "the sentence precedes the word" (Sully (50)). There is no universal psychological arrangement of the words in a sentence (Wundt (54)). Children like savages blurt out a complete sentence at once (Chamberlain (35)). Early Roman sentences were not divided into words. Speech came before parts-of-speech. Grammatically "ma" is as much of an interjection as "Fire!" But Whitney (53) says that interjections are not in the proper sense parts of speech.

When "E" said "iah" (water) and ē (eat), it was merely the outburst of an emotion. If analyzed it might be a half-dozen sentences. When she said "tē-tē" she wanted to say that there were wrinkles in her stomach which were making her uncomfortable. She had learned through experience that when she said "tē-tē" it meant pleasure. This is true of all early expressions. When "E" saw a dog, she saw an object in motion. Her parent said "dog," she imitating said dä. Mrs. Hall (10) states that "objects are seen as a whole without regard to either quality or motion." Motion is the first quality (?) of the object seen. It presents spatial qualities. It was there, now it is not there. This is what the child first sees. Motion rather than spatial relation or spatial qualities were observed when she said "dä." "Dä" was not an interjectional-substantive-attributive complex; it was a sentence—a thought expressed in words—no more, no less. When she said "doä" she meant that the door was in some way intimately connected with her desire. Either, here is a door; the door is shut; open the door, etc. "Doä" might convey or express all these meanings. The adult says "go" and expresses a sentence. The grammarian says this is elliptical, it must be expanded into a complete sentence, and then "go" is a verb. Unfortunately for both grammar and "E" she did not know this and called raisins "eats" and an alligator "bite." Parts of speech can only be classified according to the *use* of a word in a sentence.

Later more than one prominent word in the sentence is chosen. "E" in her second year said "opa doä." This is truly an abridged grammatical sentence. An imperative sentence. Negation was first expressed with the word "no" as a sort of enclytic. "Esbet go-no," meant: "Elizabeth does not want to go." "Yes" was not used until the 32d month. Before that time, "E" would answer the question: Do you want this? with the word, "want." And the question: "Are you going?" with, "I are." "Are" came from pure imitation. Such solecisms result from the same cause and may be similarly classified with mispronunciation. The use and arrangement of words comes from imitation, the same as pronunciation. In some cases the child merely forgets. We say to the child, "You are," and he very naturally says "Yes, I are." Solecisms are always so plentiful and prominent in the speech of every child, that one is surprised that any one should ever have entertained the idea that if a child had never heard an incorrect grammatical expression he would never use one. Irregular inflections are very difficult for the child. Hence, "E" said, "He doesn't know, *do* he?" "When did it *flew* away?" "You *hurted* my hand." The laws of pronunciation will take care of expressions like these: "I showed it *at* you." "Don't *tell* me any more questions."

Homer used the plural form before using the singular form, in noted instances. This is true of the primitive man (Chamberlain (35)). "E" used many plural forms before using the singular. *Shoes* before *shoe; toes* before *toe*, *teeth* before *tooth*, etc. They are so listed in the Table of Vocabularies. The reason for this is obvious—the child heard the plural form more frequently than the singular.

From a grammatical standpoint, "E" after using nouns and verbs, used adverbs, next came adjectives, pronouns, prepositions, and lastly conjunctions. Her first conjunction was "and" in her twentieth month. At two years of age she was using all the parts of speech and used simple, compound and complex sentences.

V. Word Content

On "E's" fourth birthday the following words were given her to define. She was in each case asked: "What is ———?" These "definitions" illustrate more associative memory than analysis and classification.

Apple—You buy apples.
Banana—Is to eat.
Bird—Flies and flies.
Bed—Is to sleep on.
Boat—Is long and has two ends. Will you make me a boat?
Book—Paper stuck together.
Catalogue—To see what kind of a doll-cart to get for me.
Chair—To sit on.
Chest—To keep little and big.
Chocolate—We make candy with chocolate.
Clock—To look what time daddy comes home.
Clouds—Are in the sky.
Corn—To eat and feed to black cows.
Coat—To wear.
Curtain—To put up at the window.
Daddy—Is like a man.
Darning-cotton—Is to mend stockings with.
Doll-cart—To get for me.
Dolly—Is a little doll.
Eyes—Is to look at something.
Fly—Is a fly. Do you remember that?
Elevator—Go in and stand and go up.
Glasses—To look out of.
Go-cart—Is to wheel the dolls in—a cab.
Hair—Is to comb. You can remember.
Hair-ribbon—Is to put on your hair, daddy.
Hand—Is to carry dishes with on the table.
Ink—Is to write with.
Kitchen-cabinet—Is to put dishes on.
Lake—Has water in.
Library—Is to study in.
Lips—Is to kiss with.
Milk—Is good to drink.
Milk-wagon—So you can get milk.
Mother—Looks like a lady.
Mouth—Is to eat with.
Nose—Is to blow with.
Pen—Is to dip it in the ink and to dip it out again, and to write.
Pencil—To write with.
Picture—To hang up.
Porch—To walk and stand on.
Poker—To poke fire with.
Pump—To get water in.
Rain—Is water.
Range—To cook on to make paties.
River—Is water.
Rat—Has four toes. It scratches you.
Rabbit—Has two in front and two in back. That is four, isn't it? It has four feet.
Safety-pin—Is to pin with.
School—Is at the schoolhouse.

Shampoo—Put on your hair to get vasaline out.
Snow—Is white.
Stocking—To put on legs.
Stomach—Is to get full. I won't say any more.
Stove—To build fire with.
Strap—Is to paddle with.
Supporters—Is to fasten up stockings.
Switch—Is off trees.
Table—To eat on.
Teeth—Is to eat with.
Tea—Is to drink.
Tights—Is to keep warm.
Thread—Is to sew with.
Typewriter—To make letters.
Whip—Is to spank with.
Window—Is to look out of and to put up.

CONCLUSION

"E" is now nearly five years of age and uses approximately 1,800 words. It is surprising to note how rapidly her vocabulary is increasing. She has attended kindergarten a few months and takes great interest in the work there.

Her color vocabulary has not increased except by a few terms for shades and tints. She can count to 1,000 and can tell the pages of a book up to 1,000. When a hymn is announced, as 187, she very frequently can find it.

The writer intends to continue the enumeration of her vocabulary for succeeding years. It will soon be necessary to use different methods. By taking the unabridged dictionary, my own vocabulary two years ago was estimated at 44,000 by taking every 50th page; and 43,000 by taking every 10th page.

Correspondence in reference to errors, or suggestions concerning this work, will be gladly received.

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YOUNG PEOPLE'S IDEAS OF THE VALUE OF BIBLE STUDY

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This investigation has been made in the hope that it may point the way to better methods of Bible study. It seeks to determine the attitude of young people towards the study of the Bible, and their estimate of the benefit they have derived from such study in comparison with that secured from the study of secular subjects.

In order to gather the desired information, the following questions were submitted:

1. Do you attend Sunday-school or in any other way engage in Bible study? If so, how long have you attended? If not, have you ever done so and how long?

2. Do you think the work that you have in Sunday-school (or Bible class) profits you as much as the work in public school? Give reasons for your opinion.

3. Does the Bible interest you as much as your history, literature, or other subjects do in the public school? Why?

4. Do you enjoy the Bible characters, such as Moses, David, Paul, John, etc., as well as you do such historical characters as Cromwell, Gladstone, Washington and Lincoln? Please answer fully.

5. Do you read or hear the Bible read daily in your home?

6. What part of the Bible do you think is the most interesting?

Please state

Age . . . Girl or boy . . . . Religious denomination . . . . . .

Nine hundred of these question blanks were sent to High schools, Normal schools and Colleges in Massachusetts, Vermont, New York, Iowa, Missouri, Colorado and Texas; to five educational institutions in Japan and to four in India. Over five hundred returns came in and the material from these will comprise the basis of most of this paper. These returns represent twenty different denominations, and ages from twelve to twenty-six, the great bulk of them coming between fourteen and twenty-one.

Of the papers under consideration, thirty-seven are from Japan, thirty-four from India, eighteen from a negro school in Texas and the balance, four hundred seventeen, represent the states mentioned above. For the sake of comparison these sets of papers have been kept separate and the questions will be taken up in turn and each set considered in reference to that particular point before passing to the next.

1. *Time spent in Bible study.* This first question in regard to the length of time the Bible had been studied was asked in order that we might judge the value of the answers given to the succeeding questions. In the replies we find attendance in Bible study classes ranging all the way from a few months to twenty-two years, the majority of them in the neighborhood of eight to twelve years, 9.8 being the average time of attendance of the young people of our own country, negroes excepted. It is interesting to note here also that 48 per cent. of these read or hear the Bible read every day; 45 per cent. reading or hearing it read in their own homes, and 3 per cent. hearing it read in school.

Among the negroes the average attendance is thirteen years and 67 per cent. of these read or hear the Bible read every day.

The Japanese papers show an average attendance of 6.5 years, 84 per cent. reading or hearing the Bible read daily.

The first eleven papers from India do not state the length of time these young people have been in Bible classes, but of the other twenty-three the average time of attendance is nine years and all read the Bible every day. In most of these schools Bible work is a part of the regular curriculum.

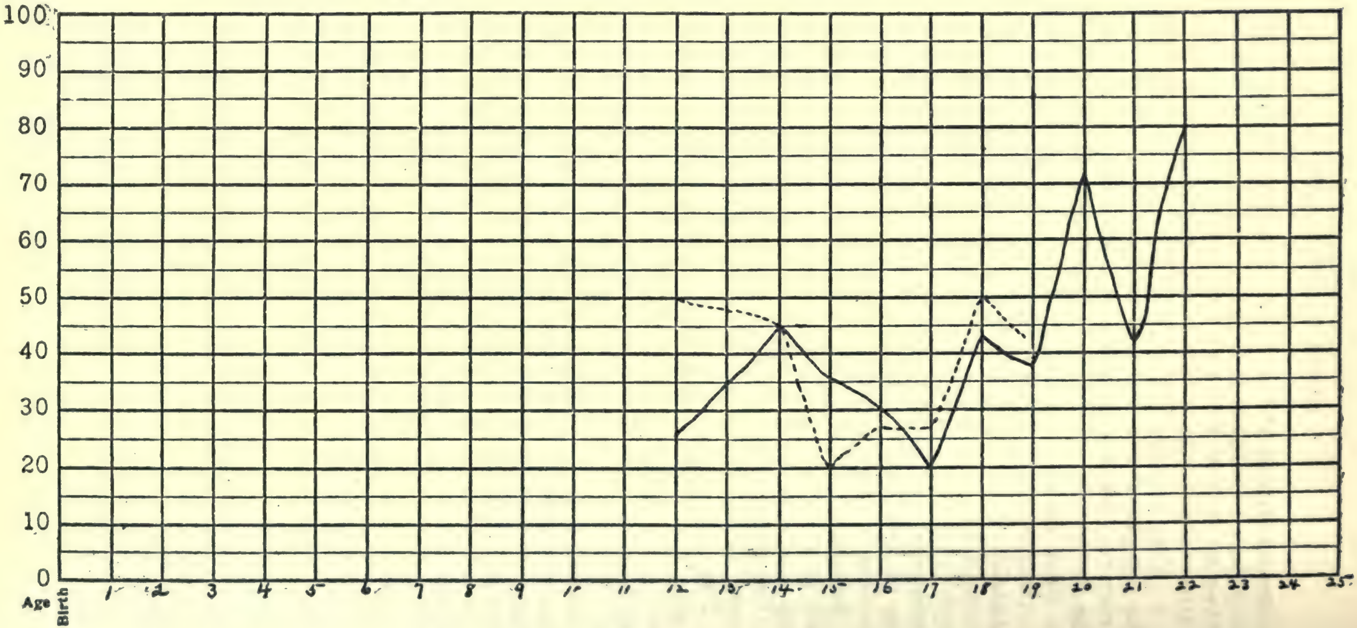
It would seem that the answers to the following questions comparing Bible work with school work in interest and profit ought to be intelligently given with this much of study as a foundation for the replies.

2. *Estimated benefit derived from Bible study compared with that derived from day school work.* We have in this section four hundred seventy-five answers; three hundred eighty-eight from our own young people, eighteen from the negroes, thirty-six from Japan, and thirty-four from India. Of the three hundred eighty-eight first mentioned, one hundred eight are boys and two hundred eighty are girls; 30.5 per cent. of the boys and 38 per cent. of the girls say "no," or 36.6 per cent. of the whole number reply negatively to this question. (22 per cent. of the negroes also say "no," but we find no negative replies in the papers from Japan or India.)

As these papers are arranged according to age, we discover quite a decided difference in the per cent. of negative replies with different ages. This can be graphically shown with the plotted curve as is done in the accompanying diagram. (See Fig. 1.)

Fig I.

Showing Negative Percents—Estimated Benefit derived from Bible Study compared with Day School Work



It will be noticed that while the curve goes down between 14 and 17 the general course is upward from 18 to 22 with, however, decided fluctuations due, perhaps, to a smaller number to judge from and, perhaps, suggestive of the rapid changes of adolescence. This general course seems very significant. At 13 and 14 there is a great love of the heroic, a keen interest in adult life and the seeking of life's ideals. Has our Sunday-school work met the needs of the life here? Has it supplied enough of the heroic element, or enough material, biographic studies for instance, from which these boys and girls could shape their ideals of life?

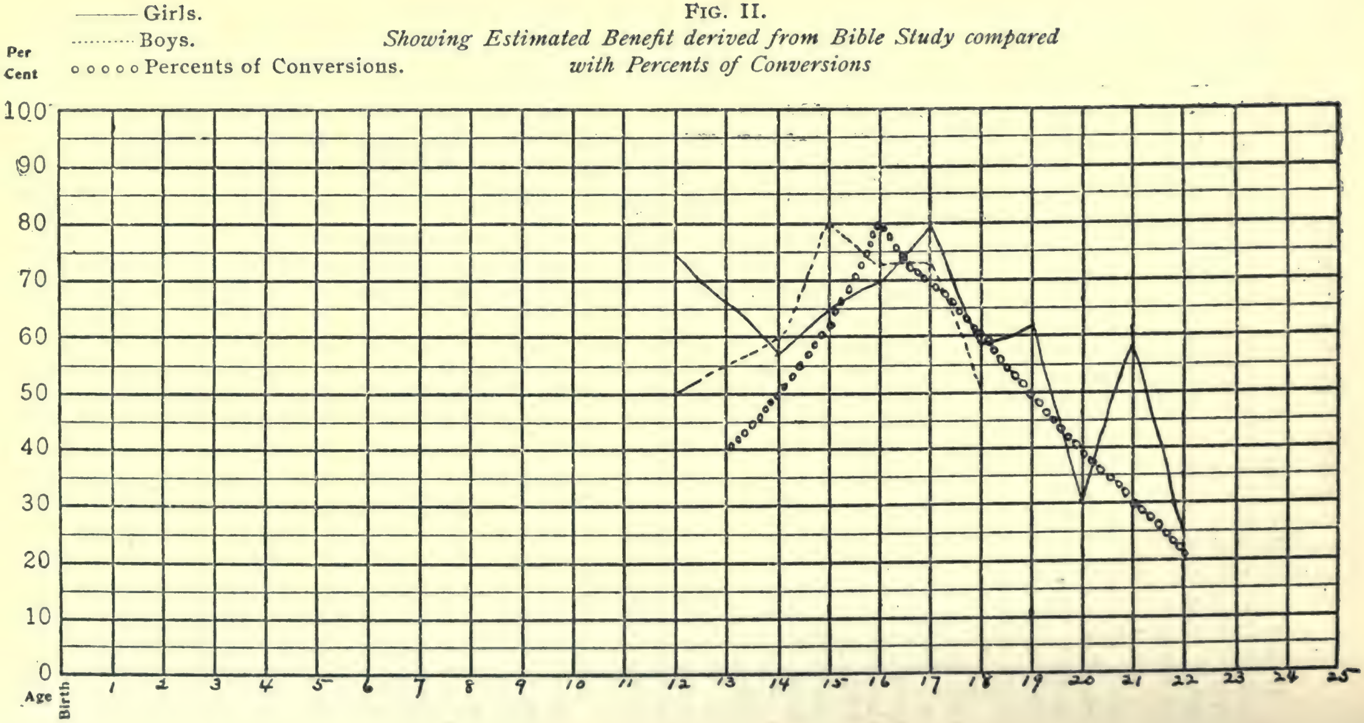
In the next period, 15 to 17, where the large per cent. think the Bible work does profit, we are in the intensely emotional and religious period. At these ages we find the most conversions; it is a time of great aspiration and the life is longing for that which is religious and, naturally, the teachings of the Bible are taken hold of eagerly. If we take the same result as shown in Fig. 1 and plot the curve for the positive side, instead of the negative, we see the result in Fig. 2. Now adding to this curve the one showing the per cent. of conversions at different ages, which represents the combined results of a number of such studies and includes statistics of several thousand cases, we find a significant parallelism between the ages of conversions and the ages at which Bible study is thought to be especially profitable, which seems to point in the direction of the explanation offered above.

From 18 to 22, however, the intellectual comes more into prominence. The youth here tries to reason out everything. He does not have that intensely religious feeling which characterized him before and he falls into doubt. Ellis and Hall, in their article on "Sunday-school Work and Bible Study in the Light of Modern Pedagogy," say in speaking of the adolescent, that he is now "able to reason, . . . he is to be driven hither and thither, new problems are to confront him, he is to doubt and to be distracted by conflicting emotions and lines of reasonings."

In the fact that so large a per cent. do not find the study of the Bible profitable during these years have we not the suggestion that the work in Bible study has failed to meet a great life need? In most of our Sunday-schools the work given for these ages is substantially the same as that for the younger pupils and it seems not to satisfy the questioning mind of those in later adolescence. Is it not true that these young people need to be met on a plane at least as high as their own intellectually? They need a good substantial foundation for the faith that is in them. They should have their belief given an intellectual basis. Not only this, but they should have teach-

FIG. II.

Showing Estimated Benefit derived from Bible Study compared with Percents of Conversions



ers who understand young life and who can anticipate their needs and meet them without making the fact evident.

Now turning to the consideration of the reasons given why Bible work does or does not profit, we find two hundred ninety-seven papers which give a reason for the view taken. Of this number, one hundred thirty-seven are on the negative and one hundred sixty on the positive side. Of the latter, 28 per cent. say it is more profitable because it helps in their daily lives; for instance, "Bible study prepares for life as much as school work does." 18 per cent. give the fact that both are needed, one stating "without Bible knowledge one would be considered uneducated."

There is quite a tendency to entirely separate the religious and the secular education and to put Bible study apart from life and its daily interests or needs. To quote two or three:—"The two cannot be compared easily. Both are necessary, the one for bodily and worldly interests, the other for the good of the soul and mind." "I think the work in Sunday-school profits just as much in its way as the school does in its way. The school prepares you for going out into the world and getting a living and the Sunday-school teaches you about God, which everybody ought to know about." (17b) "If you intend to be a priest or a minister I think Bible study would be most profitable. If you intend to be a working man or a business man the work in the public school would be the most profitable." (16b) Thirteen per cent. say that it helps in school work, speaking often of the history in the Bible which supplements the work in history in school or of the literary value. The same number speak of the moral and spiritual value and the balance are scattering, such as, "It teaches us about Christ." "It helps us in trouble." "Teaches us to think seriously."

The reasons on the negative side are bunched together and under fewer heads. Twenty-seven per cent. say it is because of poor teaching in the Sunday-school. One girl, nineteen years old, states, "My Sunday-school teacher, while a true Christian woman herself, fails to bring the lesson before the class in a way which is interesting and instructive. Under a competent teacher I think I would receive fully as much benefit from Sunday-school as from public school work, provided I studied, and if I had the teacher I would be glad to."

As a bit of extra evidence on this point it might be added that in another study, which was being made by the writer at the same time this paper was being prepared, regarding the religious experiences of young women, out of 83 papers giving the influences that led these young people into the Christian life only six mention that of the Sunday-school teacher.

Twenty-six per cent. think Bible study is not given sufficient time; either they do not study enough or, as the majority of these state, it comes only once a week. Twenty-four per cent. say that it does not fit for life, speaking of its being narrow in its scope or that it develops only one phase of life. For example, "It is not practical and not necessary to life according to present day standards," or, "We do not come into contact with it in everyday life." Six per cent. find the difficulty in the fact that Sunday-school work is not compulsory and the same number in that it is not systematic. To quote, "No, because the school work is taught by specialists in an orderly fashion, whereas Sunday-school work is done by skipping here and there through the Bible, leaving, for the most part, a very much mixed-up sensation."

If we compare briefly the results among our own boys and girls with those of the other sets of papers we will find them quite different in general tone. Of the eighteen from the negro school, four say "no," giving as the only reason that they have not given it time enough. Of the fourteen others who say "yes," twelve give reasons. Sixty-seven per cent. (or eight papers) state that it helps them in life, and four speak of the spiritual value. All of the Japanese papers are affirmative. Thirty-one give reasons. Fifty-eight per cent. find it beneficial because of its value in their lives. Some of these seem worthy of quotation because of the original expressions as well as discernment.

"I learn mostly about knowledge in school but I can learn culture of the spirit in Bible class. I think, of course, it is more needful to learn culture of the spirit than knowledge."

"Perhaps the help and good influence which the Bible study is giving on my daily life as well as on my spiritual life will be more than I realize. It promotes me to live a better and purer life, conquering myself and following what is taught in the Book."

"I think it profits me, because the work in the Bible class gives us the noble and deep knowledge and thoughts for the brain to give to us the cold council which should be done and thus it is helpful to build up the character. Moreover, the teaching of the Bible is warmer than other ethical teaching because it deals mostly with feeling using the most understandable and confident illustrations to explain the relation between God and us and that we must be true, as well as God is true. Therefore it has power to make the impulse deep and real."

The thirty-four papers from India all say "yes," and thirty of them tell why. Thirty-four per cent. connect it with the life, two say it helps in their other work, and four that it teaches their relation with God. The balance may be classed as miscellaneous. It would be interesting to quote two or three of these papers also, not only for the thought but to give an idea of the manner of expression.

"Bible study profits us much more than our school work because the school work makes us mentally and physically strong while the Bible study teaches us about our souls and the intimate relation between God and man. And it teaches us how to behave with one another. By means of Bible study our character becomes good and polite."

"I think it profits me much in everything. (1) It gives more strength to the relation between God and man. (2) It shows us the way to Paradise. (3) It teaches us how to behave with the other persons and animals. (4) By means of Bible study we can do everything correct and right."

Quite a number of these papers speak of Bible study as giving them knowledge of the future life, which seems interesting when we stop to think what it must mean to these people to get the Bible conception of life after death.

The large per cent. of students from Japan and India who relate Bible study to the problems of life seems suggestive. To them Christianity brings an entirely new world, absolutely different from, and, in many ways, opposite to what they have known before. The Bible opens up to them new fields, with new possibilities, new help, new hope, new love, in fact, a whole new life. The young people *here*, while they may not be Christians themselves, live in the atmosphere of Christianity, enjoy its privileges and results and absorb many of its elements.

3. *Interest in Bible study compared with interest in history and literature or other school work.* In this division, we have four hundred eighty-one answers, eighteen from the negroes, thirty-seven from Japan, thirty-three from India, and three hundred ninety-three from the states. Of the negroes, fourteen answered in the affirmative and four in the negative; fourteen of the whole number giving reasons. The only explanation offered on the negative side is that they have not given it time enough. On the affirmative, there are five reasons, each given twice, as follows:—"The characters are greater than found in other places." "It teaches us how to live." "It tells of God." "It tells us of the future life." "It is good history and literature itself."

The thirty-four papers from India are all affirmative, and thirty tell why. Of these, 50 per cent. say it interests them more because it teaches them how to live: for instance, "Yes, my Bible interests me very much. Whenever I find any difficulty in doing something good or I feel tedious or lazy, I take my Bible and read it carefully. When I read it carefully I find that there is no other book which is so interesting as my

Bible." "No doubt I find my Bible study very interesting. I take especial delight in reading Bible because it tells me to do my duties faithfully day by day and teaches me to depend on the Lord. Hence this is more than any history of the world. Again, the English Bible in itself is the grand literature f English. The language of the Bible I find very simple and at the same time very elegant."

Four, or 13 per cent., connect it with their school work. Three say it is always new and therefore interesting and two speak of its teaching of the future life. For instance, this: "We can only know from our Bible about salvation. By reading the Bible we become hopeful about our salvation and rising from the dead and we shall see all our dear relatives who have gone to their heavenly homes. Such things are not written in other books. Other books may be interesting but are not such as our Bible."

Of the thirty-seven Japanese papers, thirty-two say "yes," three say "no," and two are not definite. Only fifteen give reasons and they are for the most part, scattering. To give examples: "Truth is not all gone; it is always interesting. It contains deeper and broader truth." "It has relation to other studies."

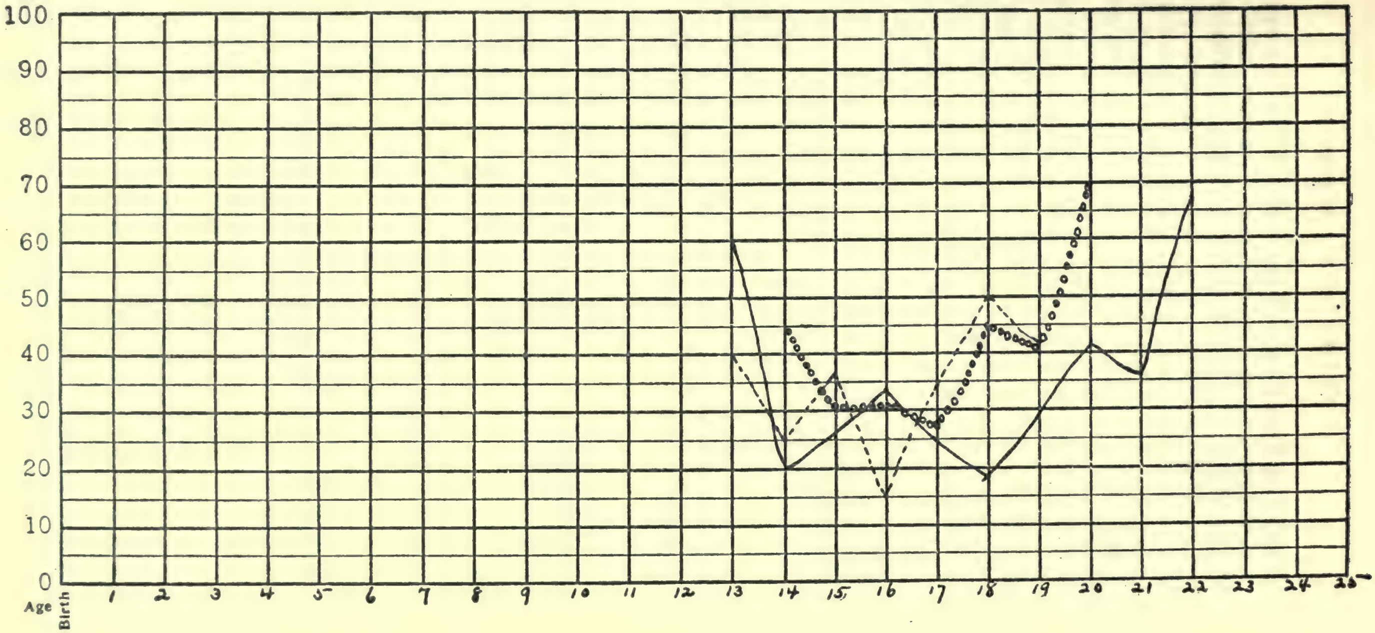
Turning now to that larger group representing the states (three hundred ninety-three in all) we find two hundred eighty-seven are girls and one hundred six are boys. Of the whole number, one hundred sixteen or 30 per cent. answered negatively (29 per cent. of the girls and 31 per cent. of the boys). Here also we are surprised at the large per cent. who do not feel as much interest in the Bible as in other studies, and in looking for the solution we try again to discover the difference, if any, at different ages. Fig. 3 will show this result in more vivid form than the mere giving of percentages. Here we find the curve perceptibly lower from 14 to 18 with the girls and from 14 to 16 or 17 with the boys, the general directions being the same as those of the curves in Fig. 1, as is shown in the accompanying diagram.

Herbart says that "interest is the mainspring of attention and memory." It certainly must also be a large factor in determining the amount of profit we get out of a certain subject and this study would seem to bear out that fact. We might raise the question here as to whether they lose their interest in Bible study later because they fail to get benefit from it, or whether they cease to be benefited because they lose their interest.

Of this entire group two hundred eighty-four give reasons, two hundred four on the affirmative side and eighty on the negative. Of the affirmative, 31 per cent. say it is because

FIG. III.

Negative Percents, Showing Interest in Bible Study compared with Estimated Benefit derived from Bible Study



the history and literature in the Bible is just as good or better than that found in any other place. Ten per cent. are interested because it tells of Christ, and the same number because of other interesting characters. Of the negative, 33 per cent. find the explanation in the fact that it is not carefully studied and they do not understand it, and 30 per cent. because of poor teaching. Nine per cent. think it is not given enough time.

4. *Enjoyment of Bible characters compared with enjoyment of other historical characters.* The Bible characters mentioned are Moses, David, Paul and John and the historical characters are Washington, Lincoln, Gladstone and Cromwell, and, of course, in those papers sent to foreign countries other characters with whom those young people were acquainted were substituted. All told, there are four hundred seventy answers to this question, sixteen from negroes, thirty-three from India, thirty-six from Japan, and three hundred eighty-five representing our own schools. Among the negroes, the sixteen answers are all affirmative. The reasons given are that they are more heroic or that they represent truer manhood. Of the thirty-three papers from India, one makes a distinction between their own and other national characters, saying the Bible characters are more interesting than the national characters of other countries, but that he enjoyed their own men of history better than the men of the Bible. The other thirty-two answered affirmatively, 51 per cent. giving as the reasons, the greater characters and more unselfish lives, and 31 per cent. mentioning the fact that they were men led of God. Many of these would be interesting to quote but are too long.

Thirty-three of the thirty-seven papers from Japan say "yes," three say "no," and one thinks they cannot be compared. The negative reason is lack of knowledge, and the affirmative can be grouped under two heads—those who speak of the greatness of the characters and teachings of these men, and those who mention their bravery and faith.

Of the three hundred eighty-five replies from the schools of our country, two hundred seventy-nine are girls and one hundred six are boys. Twenty-seven per cent. answered negatively —32 per cent. of the boys and 24 per cent. of the girls. One hundred fifty-five give reasons for their opinions, seventy-seven of them being affirmative and seventy-eight negative. Of the affirmative, 30 per cent. express the thought that they are just as enjoyable on account of their good, noble or beautiful characters; 16 per cent. find the reason in that they were men of such great influence, or are such splendid examples for us. Some of the other reasons given in small numbers are: "They are just the same class of men as the historical characters."

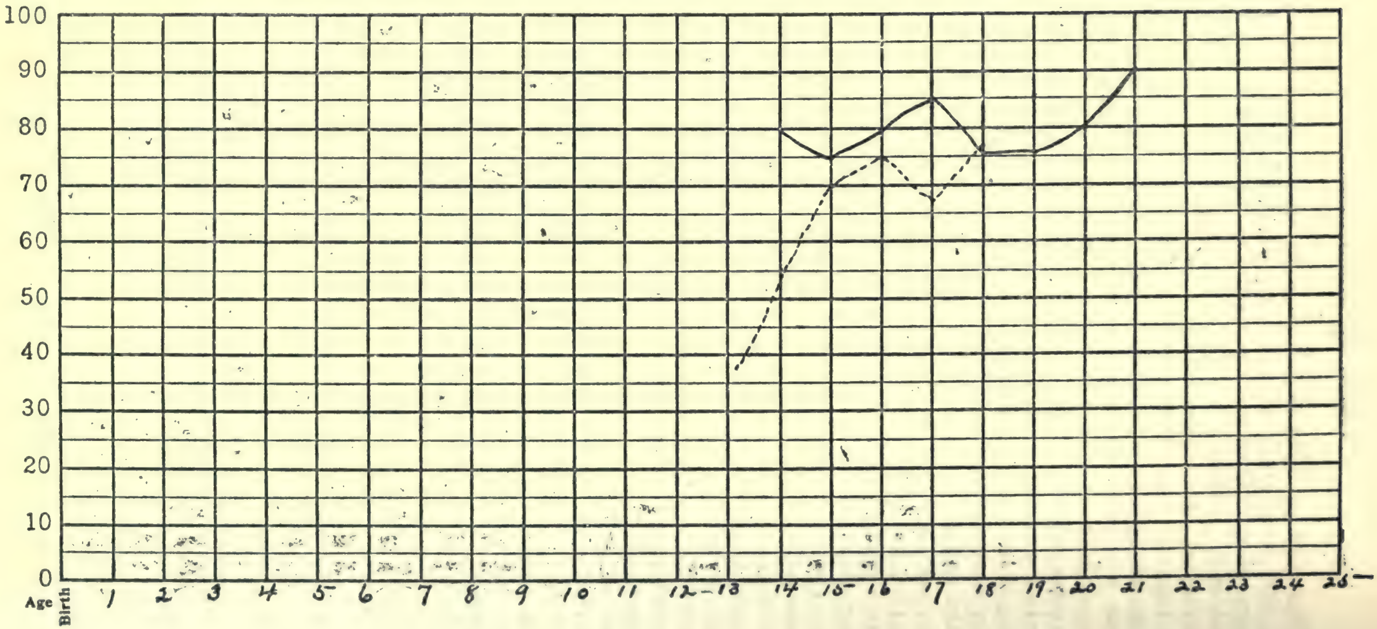
"They give an idea of life so long ago." And a few others say that they enjoy comparing them with men of our time; for instance, "They are interesting as people in a growing age—while the historical characters are interesting as people in a grown and Christianized age." Or, "It is interesting to know the customs and characteristics of men of that time and contrast them with the men of to-day." Six per cent. of them make a distinction between the historical characters of our own and other countries, saying that the men of the Bible are more enjoyable than historical characters of other nations, but that our own men of history are more interesting than the Bible characters. This may not be significant in any way, but it certainly is interesting as a bit of national pride or patriotism.

The negative reasons fall mostly under three heads: 39 per cent. say they do not know enough about them; 28 per cent. say they are too distant and unreal and do not seem human; and 18 per cent. state that they do not have a direct bearing on our government and questions of our day.

5. *Part of the Bible most enjoyed.* Here we shall discover some interesting and significant differences between the nationalities. The young people from the schools of this country show a decided preference for the New Testament, the girls betraying a rather more marked preference than the boys. The plotted curve of Fig. 4 shows the result of this question as the papers are arranged according to age. The result agrees, in general, with the study made by Dr. George E. Dawson in his book, "The Child and His Religion." In his study the percentages do not run so high at first. Beginning, at 14 or 15 years, at about 50 per cent. they rise gradually to 98 per cent. with the girls and 90 per cent. with the boys. This is doubtless more correct as many more cases were considered in his study than in this one. But, in any case, it shows that the decided preference is for the New Testament during these adolescent years. Is this not what we would expect when we remember that this is the time of the awakening of religious feeling and of the rapid development of the altruistic emotions? The New Testament is full of altruism, while the Old Testament has very little of this particular type of teaching. To quote from Dr. Dawson's book: "Fear, anger, jealousy, hatred, revenge, etc., are conspicuous attributes of God and men in the Old Testament; while sympathy, compassion, trustfulness and love are the prominent attributes of God and men in the New Testament." Furthermore of the three hundred forty-seven making a choice, one hundred seven mention a part or the whole of the life of Christ, which is the very personification of love and altruism.

FIG. IV

Showing interest in New Testament



Referring again to the article by Ellis and Hall, we find this statement: "This is the time," speaking of the adolescent, "for him to begin to understand rightly the sacrifice of Christ, the New Testament idea of the Christian ideal;" and the preference of young people, so far as this study would indicate, is for just that type of teaching.

Of the negroes, 82 per cent. choose the New Testament, and of the Japanese papers, 65 per cent. choose the New Testament, 25 per cent. the Old Testament and 10 per cent. mention a part of each.

When we come to consider the papers from India we find only 20 per cent. who prefer the New Testament, 8 per cent. the Old Testament and 72 per cent. who mention both Old and New Testament books, with the Old Testament books mentioned first almost invariably; 46 per cent. of the whole number mention Proverbs and 47 per cent. speak of Psalms. This is characteristically different from any of the other sets and significant of a different type of mind or of a different stage of development. The Hindoo mind is certainly much nearer the primitive stage of development than the Saxon or Japanese. As the race develops religiously the stages are primitive nature worship, then the legalistic stage, represented by Hebrews, and later the aspirational stage represented by Old Testament prophets and most perfectly in Jesus Christ. Now is it not possible to explain this love for Old Testament literature by the fact that these Hindoo people are still in the legalistic stage, but are rapidly rising, through the effects of Christian missions, into the aspirational stage, evidenced by the fact that the majority of them mention New Testament books along with the Old Testament? Another possible explanation of their love for Proverbs is found in the thought that these bits of wisdom form a code for moral life. The idea of morality, as a part of religion or connected with it in any way, is doubtless new to their mind and, moreover, they have not been brought up in the atmosphere of moral teaching and surrounded by Christian men and women whose lives are constant examples of true morality, so that they are eager for all the light they can get in the line of standards for moral conduct.

Before we pass to the final suggestions one other point of general interest might be mentioned. As these papers came in, it was noticed that they differed materially according to the section of country from which they came and so care was taken to keep track of this point. It seems worthy of note that taking them in groups, representing the east and the west, the percentages of negative replies, in response to question 2, as regards the benefit received from Bible study in comparison with that derived from day school work, are quite different. Of the two hundred forty papers from the east 51 per cent. answer negatively, and of the one hundred three papers from the west, only 17 per cent. answer negatively.

Sunday-school workers tell us that the methods in the west are in advance of those in the east. Though the improvement is comparatively small it would seem that we are warranted in saying that this great difference in attitude is, at least, partially due to this fact. If such a change can be evidenced, partly as a result of this betterment in Sunday-school methods, what an encouragement it should be, and what an impetus to advance along all lines of religious education. In this connection it might be added that of the total number of those who have been in Sunday-school, 41 per cent. answered negatively, and of those who have had some work in a regular systematic Bible class, only 15 per cent. answered negatively.

In attempting to interpret the foregoing facts we must acknowledge that the full purpose of biblical instruction seems not to have been realized.

The Bible is a wonderful source of rich and powerful material. As Lyman Abbott has said, "The Bible is not a Book but a library. It stands as a revelation of God unparalled for its strength and beauty by any other of the world of literatures." Not only this, but it contains the message of life to mankind which is a "clearer, fuller and farther-reaching" message than has been proclaimed before. In the words of Charles D. Warner "The Bible is the best illustration of the literature of power for it always concerns itself with life; it touches life at all points. And this is the best test of any piece of literature; its universal appeal to human nature."

With this conception of the Bible, and with our purpose of producing, through its study, strong, self-reliant Christian characters, we must, in the light of this study, ask ourselves the questions: Wherein have we failed to meet our conscious aim? Is anything being done, and what more can we offer to better the methods of religious education? While the returns are not adequate in number to warrant final and positive conclusions, they do seem of sufficient importance to justify the pointing out of certain inferences which they suggest.

In regard to present efforts toward reconstruction of methods, the new system of grading the Sunday-school should be mentioned. The course of study planned in connection with this gradation forms a systematic, progressive education from the primary to the adult department. Under this plan, teachers as well as pupils must be graded, The work is also made practically compulsory, because failure to pass the examinations means failure to receive the diploma and be promoted with the class.

The question of time presents a greater problem. When the young people themselves recognize this difficulty, however, and give it as a reason why Bible study does not profit them, should not Christian people face this situation and all that it involves and demand that religious instruction be given its proper place in the education of our youth? Could not other organizations, such as the Young Men's and Young Women's Christian Associations correlate their work with that of the Sunday-school and arrange to give supplementary courses in Bible study during the week?

The fact that so few (11 per cent. of the whole number) connect Bible study with life in a helpful way, seems suggestive of an awful gap that is growing up in the minds of our boys and girls between religion and life. Has not much of our lesson material been at fault here? Hubbell in his book, "Up From Childhood," says, in speaking of the work of religious education, that "many things are offered that are not closely related to the life of the child, with the result that he forms the habit of receiving good things without any thought that they are to be practised in daily life. The test has never been, does this information meet the needs of the growing child." The result of this study would seem to emphasize the truth of that statement. Have we not greatly neglected the vital things and taught a type of salvation that utterly ignores the relation of religion to the physical and instinctive life, trying to regenerate humanity through the intellectual only? Bible study is for the purpose of teaching us of the Christ and the Christian religion—which is a life to be lived. Jesus Christ said, "I am come that they may have life and may have it abundantly," but so far as the results here would indicate, the majority of these students have failed to get that message. In talking with Christian Association secretaries of wide experience, the thought that it is only the Bible work which touches life that really counts, was often expressed. In the words of one of them, "The girls want something that is definite and vital for their everyday living."

Dr. Luther Gulick, in his article on the Religions Significance of Group Games, makes this statement. "The religious leaders who have been presented for the hero worshiping instinct of the Saxon boy have been inferior, on the whole, in masculine respects, to those presented who were not religious leaders." A little further on, in speaking of Jesus Christ in this same connection, he says, "We constantly think of Christ as the embodiment of meekness, non-resistance and of all the passive virtues. This is true, but I think we have wholly misrepresented Him if we fail to bring into equal prominence His life of active, objective righteousness, His tremendous denunciation of hypocrisy and wickedness, His constant doing of good for others . . . His life represents objective righteousness as well as subjective righteousness.'' Is it not possible that we have made much the same mistake in avoiding the struggle with adverse circumstances; the objective side of these other characters, even though they failed occasionally, that we have made in avoiding the active denunciatory work of Christ, and thus have failed to make them impressive as men of history? Have we not in this very fact the explanation of the attitude of so many in comparing the men of the Bible with other historical leaders? Have we not thus made these men rather mystical and unhuman? One girl expressed this very thought in the following: — ''They are too saintly and far away. Washington and Lincoln made mistakes that we can understand.''

One other characteristic that should be noted is the individualistic element. The full force of this could not be shown in the report of the investigation but was very noticeable in looking over the returns and seemed very significant since it was so prominent throughout the study. The thing that greatly impressed one was passed without notice by another. The part of the Bible that made the greatest appeal to one was apparently uninteresting to others. Is this not a suggestion to those of us who would teach, to do more individual work? Augustine saw the necessity for this and said, ''Each pupil is to be treated according to his individual needs. Examine him and make his present error a starting point . . . It is the individual pupil who is to be taught.'' If we would make our Bible work touch life we can only do it through reaching the needs of the individual life and not ''en masse.'' This is the example the Great Teacher set before us. He saw the multitude as so many individual souls and because He saw them as such ''He was moved with compassion.'' It was through the winning of individuals that He founded His kingdom upon earth.

FOUR HUNDRED FEEBLE-MINDED CHILDREN CLASSIFIED BY THE BINET METHOD[1]

By Henry H. Goddard

One year ago at our meeting at Chippewa Falls I presented a paper in which it was attempted to show how we might develop a classification based on tests of mental ability, and which would have some uniformity, upon which we could all agree. I outlined at that time a decimal system based upon a set of tests devised by Prof. Binet of Paris. The Binet Tests then referred to were those published by him in 1906. In 1908 Prof. Binet published a new set, what may be called the final summing up of his many years of work in the study of methods of measuring intelligence.

In these tests, a part of which I have translated and published in the Training School for Jan., 1910, Binet has worked over and standardized his tests until he has a very definite and apparently accurate "Measuring Scale for Intelligence," as he calls it.

By carefully studying normal children and finding out what they can do, and picking out, of all the things that he has found, those that are so fundamental and human that they do not depend upon training, he is able to say to us, any normal child who has lived in the world three years is able to do such and such things. He gives five tests for each year. First, such a child of three can point to his nose, his eyes, his mouth; he can repeat a couple of simple phrases as, "it rains, I am hungry;" he can repeat two figures; he can enumerate more or less of the things seen in a picture; and lastly, he knows his own name. At the age of four he can go a little farther. He knows whether he is a boy or a girl, which he did not know at three. He recognizes a knife, a penny and a key. He can repeat three figures now, and he knows the difference in length between lines that are an inch and a half and lines that are two inches long, and so on through the years up to and including thirteen.

As you know, we have been studying, testing and examining the children at Vineland for nearly four years. When this set of tests appeared, we at once concluded that the best thing to do would be to put our children systematically through the tests for the sake of testing the tests as well as finding out how our children would rank in regard to them. That work has recently been completed, and it is for the purpose of giving you some idea of the value of this method that I am going to present to you the results of that study.

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[1] Read at Lincoln, Ill., Meeting of the American Association for the Study of the Feeble Minded. Published with the consent of the Journal of Psycho-Asthenics.

We find our children divide up into the following groups. Thirty-six have the mental capacity of a child of one year, thirty-seven the capacity of a child of two years, forty of three years, thirty-seven of four years, forty-two of five years, thirty-nine of six years, forty-seven of seven years, forty-four of eight years, thirty of nine years, fourteen of ten years, five of eleven years, and seven of twelve years. There are none who test above twelve.

Having arrived at these divisions, our next problem was to study the results in the light of our experience with these children. The first thing was to call to our aid the experience of all those in the institution who knew these children and had known them for some years. At our executive meeting, composed of the heads of all the departments of the institution, these lists were read, one at a time, and the members present were asked to express their opinion as to whether the children given in any one list seemed to them to be all of about the same mental capacity; whether, any in the ten year old list, for example, seemed to them to be much higher or much lower than others in that list. The result of this method was as follows: as soon as the list was read, some one immediately raised a question in regard to certain cases. This, was, I believe without exception, always answered by others in the room, that the objection was not a valid one, that the child in question was of about the same grade as the general run of the group. Perhaps the person who thus answered would, on the other hand, suggest some other child that he thought did not belong to the group, to which again others would make the same answer. In other words, the outcome was that no child was entirely thrown out of the group by even a majority of those present, to say nothing of a universal condemnation of the result.

I next took the same procedure with the teachers of the school, having them all together, I read the lists carefully, and asked them to raise any objections that occurred to them to grouping all of these children together. Precisely the same thing happened as with the heads of departments. Certain teachers felt that some child, or several children, perhaps, were too high or too low and did not belong to the group, but always some one or more came to the defense of the classification as it was presented and the result was that we decided that there was no exception to be made to the grouping as determined by the Binet tests.

Such a result as this was very surprising and encouraging. Such a result was not wholly unlooked for by us because, while giving the tests we had come more and more to feel that Binet had certainly evolved a very remarkable set of questions, and that they did work out with amazing accuracy, and I believe it is true that no one can use the tests on any fair number of children without becoming convinced that whatever defects or faults they may have, and no one can claim that they are perfect, the tests do come amazingly near what we feel to be the truth in regard to the mental status of any child tested. At least I believe that it is correct to say that the classification as we have made it in accordance with these tests is entirely satisfactory to all of the people in our institution to whom the result has been submitted.

But such a test as this, by appealing to the opinion or it may be said, the memory of a group of people, however well they may know the children, valuable as it is, is not quite conclusive. We are, however, not limited to this test of the result.

Last fall when we began the testing, we also began another system by which we would be able, as we hoped, to check up the results and correlate two different lines or kinds of estimates, and come at something that should be scientifically accurate. The first step in this was to prepare blanks, containing a rather long and, as it seemed to us at the time, a rather exhaustive list of questions in regard to the children. The plan was to send these around to every normal person on our grounds who had anything to do with any child, and ask him to answer such questins as he found he could answer. The plan was later modified and improved, as we believe, by sending one of my laboratory assistants to interview each attendant or employee and write down, at his dictation, what he had to say in regard to the child. If this had perhaps some slight disadvantage, it undoubtedly had the great advantage that the assistant was able at all times to explain what we meant by the question and to elicite definite answers which we would not otherwise have obtained. In no case was any person urged to try to find an answer to any question, but all were encouraged to report everything for which their experience had qualified them.

In this way we obtained from two to fifteen separate and independent comments on each child. These comments are sometimes conflicting, but the conflict can usually be explained. For instance, one person may say that a child is honest, the next one says that he is not. In that case we find that one person has had some experience with that child which the other has not had.

Our next step was to get all the data together where it could be seen at a glance. Large, specially ruled sheets were prepared with the headings or catch words referring to each question on our separate blanks, and columns vertically ruled for the name of the person giving the answer. Then the whole was gone over and the answers in abbreviated form were transferred to this large sheet, so that when that work was completed we had a large sheet for every child in the institution, and on that sheet we have the opinion on that child expressed by every person who knows anything about him.

The final step in the process is to put together the results as obtained by this latter method, and the results of the Binet tests. For instance, we must find out whether the child who, according to the Binet tests, has a mental development of a ten-year-old normal child is really better in his whole history in the institution as tested by experience, than the child who, according to Binet, would rank as nine years of age mentally. The result as far as we have obtained it, I shall detail to you presently. But first I must tell you that we have still another correlation that we have been carrying on. As you know, we are testing the children in the Laboratory by methods of our own, by methods that we have picked up here and there. These are, perhaps we may say, mechanical methods, or better, methods of motor control, or methods of testing the intelligence in other ways than by appealing directly to the intelligence and having the child answer questions. Our plan included, therefore, lastly, the testing the children by all of the different methods, for example, by the methods that you saw at Chippewa Falls last year, and that you can see in the Laboratory here at Lincoln, and then correlating those results with the Binet tests, and the results of experience as tabulated on the large sheets. For example, we must determine whether the ten year old boy as classified by Binet does better work on the Ergograph than the nine year old boy; whether the seven year old can do the Form Board in quicker time than the six year old; whether the four year old is a little better with the Ataxiagraph than the three year old (all of these being mental ages of course), and so on through our entire list of tests, or any others that we may devise.

I had hoped to have a great deal of this done at this time and be able to present to you a conclusive argument on this question of classification. However, the work has proved to be vastly greater than I had imagined, and although there have been three of us at work on it all of the year nearly, we have still a great deal to do. Indeed, it will take probably at least another year to get anything like a complete statement of results along all these lines.

However, I am able to present you a few things which will give you some idea of the general trend of the matter and I hope throw some light and enable you, perhaps, to take some action on this matter of classification.

Perhaps I may take the Form Board first, as the simplest and well illustrating the methods with all of our special tests of motor ability. Having had every child in the institution try the Form Board and noting the time in which he was able to place the ten blocks in their holes, we arranged those on a curve according to the mental age of the child as determined by the Binet test.

The result is shown as follows: Those who are two years old mentally require 150 seconds on the average to do the Form Board. Those who are three years old require 70 seconds, the four year olds 50 seconds, the five year group 30 seconds, and so on down gradually as you see, until those who are twelve years old do the Form Board in 13 seconds. We thus get a very pretty curve and a very clear confirmation of Binet's estimate. We have been able to carry this a little further. You will find by reference to the Binet test that at the age of five he says a child should be able to copy a square, at the age of seven he is able to copy a diamond. This is, of course, the average. As individuals, we find, of course, some can copy the diamond earlier than seven and some not until later. Some can copy the square as early as three years, and some not until seven or nine. Taking all of these cases and drawing the curve for those who can do only the square at the various ages, and those who can do the diamond, and then comparing that with the time it takes them to do the Form Board, we have some very interesting results, which read like this. Those children who can do neither the square nor the diamond require a longer time to do the Form Board than the average of all the children. Those who can do the square but not the diamond do the Form Board in less time than those who cannot do the square. Lastly, those who can copy a square and a diamond both, can do the Form Board in the quickest possible time, age for age. And thus again we have a very neat confirmation of the correct estimate of the children according to the Binet method.

Several other tests have been carried through, some of them not quite worked up as yet; I will not trouble you with them at the present time.

Let us turn our attention now to the much more difficult problem, but one which I feel sure will appeal to you more strongly, that of correlating the results of our study as condensed on the large sheets, with the Binet ages. We have as yet really finished nothing in this line of work, but I am able to give you a little on the first topic that we took up. It seemed that the question of what these children were *actually doing*, *had been trained to do*, would be one of the very fundamental things in this whole problem. We have, accordingly, gone over the sheets and determined, on the basis of all of the answers by the people who work with them, what each child can do, and what he is actually doing, and how he is doing it.

Before following this through, I must call your attention to a difficulty that we met at the outset. We soon realized that since each group contained children who were actually anywhere from twelve to fifty years of age, we were facing a very interesting problem, as to what was the difference between children of the same mentality some of whom had lived in the world twelve years, while others had lived twenty years. In other words, assuming that a child could remain ten years of age how much could he learn to do? Of course in considering the normal child we have no basis for judgment concerning one child, because while an eight-year-old child is learning to do one thing he becomes nine and ten and eleven before he has learned very many things. If we could take a thousand normal children of say ten years of age, all of whom had had different opportunities, and had been taught different things, and group together all of the different things that they have learned to do, we would have some idea of the meaning of a child's being ten years old, and we would have something that would be valuable to our present study, because we would then know what to expect of these children. In other words a child who tests according to the Binet test ten years of age, but is actually fifty years old, may be expected to do a great many things which will quite surprise us, because we have never happened to know of a ten year old child that could do all of these things.

This is exactly what we find, and our first impression when we consider any one of these older children, is invariably, that no normal child of that particular age could really do all those things; which is quite true, no *one* child could. Furthermore we found that this fact complicated the matter very much when we came to attempt to sub-divide these into groups according to what they could do. We found for example, that a child who was seven years old mentally but forty years old in experience could do just as much and just as well as some other child who was ten years old mentally and only twenty years old in fact. So that in order to get some accurate idea as to what mental age meant in the training of these children, we had to cut out all of those who were beyond the training period, consequently we have considered those who are under twenty, and we find that a nine year old child under twenty does better work than an eight year old child under twenty, whereas, as already said, we might not necessarily find that a nine year old child would do as good work as some other child who was mentally seven years old, if the former were under twenty while the latter were nearer thirty.

Taking these things into consideration we find we have the following.

In the one year group we have the children who do not talk and do not play.

In the two year group there are a great many that play a little, although it might perhaps be questioned whether it should be called play, and would not more wisely be considered simply irritability. When we look at the older group, that is, those above twenty in this two year grade, we find some who attempt some sort of simple work.

In the absence of a long past history of these cases we wonder whether it may not mean that at one time they were of a higher grade, but now on account of their age have degenerated and lost so that they cannot pass the Binet test at any higher age than two.

In the three year group we find many that play, and all talk. This seems to make a rather sharp line, because as we said in our two year group there are none that talk at all.

In the four year old group we find about the lowest of those who do any work. Very little is expected from any of these children who are under twenty years of age. Those who are over twenty have learned to do a *little*, but still not very much. They are about what we have called under the old classification, low grade imbecile.

In the five year group we find the emphasis laid upon those who *help* or who *try*. One boy tries to make beds, another one does kindergarten work, another cannot learn any work, another one can "sort clothes," which means that when he is given an article and told what it is he can put it into a certain box.

In the six year group we find a *great deal of mention* made of the children who help do things; not that they make beds but they help make beds, do kindergarten work, or iron an apron.

In the seven year group we find expressions like this, "little things in the cottage," "rub floors," "dust," "do errands," "little errands," and so on through the list.

We find a distinct improvement as we pass into the eight year group. There are children here who do errands, who do the simplest sort of barn work, the school children who can perhaps mend stockings or sew a little, or ordinary work of sweeping, or emptying the garbage box.

We find in the nine year group children who can do pretty good routine work to which they have been trained, but they still require careful supervision. They can, for instance, help around the house and around the barn; they can do errands, they can pile up bricks, they can take care of a bath room perhaps, or do simple ironing, or mending.

Of those who grade to the mentality of a ten year old child, there are fourteen. There is on the whole quite a noticeable difference between these children and the younger ones. The work that they do is rather higher, they require less supervision, so that it is plainly noticeable that they are older than those in the lower group.

In the eleven year old group we find only *five* individuals, but they are children who, for example, can care for the supervisor's room *entirely*, can take care of *animals* entirely satisfactorily, and who require little or no supervision. They are it is true not quite as expert or quite as trustworthy as those a year older, and yet the difference is very little and the two ages can probably be very well classed together.

It will be found noticeable that there are only seven who grade twelve years of age, but among these seven are those who can, for example, weigh out groceries, use machinery of various kinds, do housework as well as anybody can do it, and who require practically no supervision in doing the things that they have been taught to do. Such are our results as far as we have worked them out.

Now in the light of all this, we might have the following classification for these children. I believe that the one- and two-year-olds probably come under the group that we have always called idiots. These might again be sub-divided for those who wish to draw a closer line, and use the old expressions into the low-grade idiots—the absolutely helpless, probably under one year of mental development, the middle idiots—those who are one year old, those who can help themselves a little, perhaps feed themselves, and the high grade idiots those who can not only feed themselves, but can discriminate somewhat as to what is good to eat.

Then we would perhaps have the imbecile group, including the ages from three to seven, again to be sub-divided into the three and four year group—the low grade imbecile, the five year group would be about the middle grade imbecile, the six and seven year group—the high grade imbecile. All the rest would come under the highest group which has been called in a good many places feeble-minded in the specific sense.

These could again be sub-divided, the eight and nine year old into the low grade, the ten year old the middle grade, the eleven and twelve year old the high grade. I would like to suggest further that it is extremely desirable that we have a new word instead of "feeble-minded" for this high grade group. Feeble-minded is universally used in this country now to cover the entire range of mental defectives. Our institutions are institutions for the feeble-minded. We need a name for this high grade group for many reasons. First, as suggested, to distinguish it from the whole group when we wish to speak in a specific sense; secondly, we need it very much in order to make the public understand that there is a special group of children that requires very special attention.

I presume no one in this audience, certainly none of the superintendents of institutions need to be reminded that the public is entirely ignorant of this particular group. Our public school systems are full of them, and yet Superintendents and Boards of Education are struggling to make normal people out of them. One of the most helpful things that we can do, would be to distinctly mark out the limits of this class and help the general public to understand that they are a special group and require special treatment,—in institutions when possible, in special classes in public schools, when institutions are out of reach.

Two words have been suggested for this group, the one being the word "proximate" with the underlying thought that these children are nearly normal. The other word proposed is a Greek work, the noun from the Greek word meaning foolish, "moronia," and these children might be called "morons." Fool or foolish in the English sense exactly describes this group of children. The Century Dictionary defines a fool as one who is deficient in judgment, or sense, etc., which is distinctly the group we are working with. I believe the etymology is correct and the derivatives would be easy. We would have moron for the noun, moronia for the condition, moronic for the adjective, and so it would seem to answer every requirement.

Furthermore, it will be seen that such a classification as this gives nine classes when we sub-divide it, with ten as the upper limit, the normal child. Of course, we do not go into the question at all as to the degree of intellectual capacity of that higher group. We know we have there backward children, and normal children, that is, children who are fully up to the average, and children that are above the average, but from our standpoint those children are all normal, and there is no reason for them to come into our care.

In conclusion I may state one or two points of some interest by way of further explanation, and as the result of our study.

We should certainly emphasize here what is known to all of you, that the old terms of classification, while of interest to physicians, perhaps, are of no practical value to us, and in accordance with this classification, it could be made very clear that, for instance, a microcephalic child might be a moron, an imbecile, or an idiot, a hydrocephalic the same, and so on through the list. In other words, these words do not help us to know anything about what the child is capable of in the way of training and development,—the one thing that we in institutions wish to know, and the one thing that the public is clamoring to know, the one thing that parents ask when they come to us.

I think that we have all felt that of all the old terms of classification, "Mongolian," was the only one that gave us very much of an idea of the grade of the child. It will be interesting in that connection to note that of all the mongolians, fourteen, in our institution, one is age three, nine are four years in mental development, four are of the fifth year, and two in the seventh year. We recognize at the institution that these two have been specially trained and are decidedly above their grade, and we have great fears that when the very special, individual training that they have received, coming as they do from wealthy families, is relaxed for a moment they will fall back in grade. It is clearly seen then, that on the average a mongolian is of the mental development of a four or five year old child. In other words, he is, as we have always said, a middle or low grade imbecile.

Another point that has interested us greatly is the question of the so-called moral imbecile. We have interpreted this expression very loosely, and included in this group all those children that give trouble because of their inability either to understand the simplest moral law or to conform to it at all. It included then, all those cases who show marked sexual disturbance, except masturbation which is perhaps a mere habit, and thieving or untruthfulness. The striking thing here is, that of the twenty-three cases of this sort picked out for us by the Head of the School Department, Mrs. Nash, fifteen are in the nine year old group, five in the ten year old, two in the eleven, and one in the twelve. I believe that this is not accidental, but is one more confirmation of the accuracy of the Binet Classification, and secondly, it conforms to the psychology of the situation. If we look back for a moment to that much discussed question of the moral imbecile, we find that the best explanation of it is that as we all know the child is born with certain instincts, other instincts develop as the years go by until all of those things that are particularly human have had their time and have either developed and become fixed habits of life, or have been modified or conquered. The reason for the overcoming and destroying of such instincts is found in the fact that these instincts have developed when man was in a more primitive condition, and these things were at that time useful to him. For example, before men came to live together under the conditions of modern society, lying and stealing were virtues, and consequently became instinctive, that they are instinctive in us to-day no one who is frank and honest with himself for a moment doubts. We have all had the impulses to do these things and probably very few of us have escaped becoming for a time at least victims of these instincts. It may be said, perhaps, without much doubt that we have all been liars and thieves for a short period at least in our lives, but fortunately owing to good training, good environment, we got through that period without disgracing ourselves or the family, and we learned to be moral. But it must be rememberd that we did *learn* to become moral, that we overcame these instincts because we were taught and had minds enough to learn what was taught us, to see the consequences, and appreciate the importance of our doing as society prescribes. Had we been lacking in the ability to reason that out, to note cause and effect, etc., we never would have learned the very important lesson.

Now if we are to take our results here literally, and we may for the moment at least take them literally for the sake of argument, we would say this: those instincts that lead the child to become what we loosely call a moral imbecile, ripen about the age of nine years, now if a child is arrested in his development at just about that time then he is a liar, a thief, a sex pervert, or whatever else he may be, because those instincts are strong in him, having already come to full maturity, and the reasoning power, the judgment, those faculties or processes which lead him to learn to control those instincts have never developed and cannot. Had he been arrested in his development a year or two sooner, he would not have been a moral imbecile because the instincts that lead to it had not developed. On the other hand, had his arrest been delayed for two or three years, he would have developed sufficient reasoning power to enable him to overcome and control those instincts, and so again he would not have been a moral imbecile, but the arrest coming at just that critical period of nine, we find him with all those tendencies exceedingly strong and no power of control.

Such are some of the results and inferences from this study. They need very much revision and consideration, but it seemed best to give you the matter as it stands at present.

INDUSTRIAL EDUCATION IN CHICAGO

By May Wood-Simons

CHAPTER I

Social Conditions Creating Demand for Industrial Education

Causes, that are leading to a general demand for industrial education, must be sought in two directions. First, in those changes in economic organization that have destroyed the old form of apprenticeship; second, in the force of international competition, that is compelling each industrial nation to utilize not only its raw materials but to perfect, as far as possible, its productive labor in order to maintain itself against competition.

The early apprenticeship system, fostered by the guilds, was forced practically to disappear with the advent of modern factory production. The busy workshops of the great industries, with their extreme subdivision of labor, are not the places in which a boy can be trained in all the phases of his trade and become an all-around craftsman.

With a large and expensive plant and subjected to close competition employers are primarily interested in the production of profit. That the product may be as large as possible, an efficient workman is required to handle each machine. With the present organization of industry, the responsibility of each workman in factory or shop lies in his completing that part of the productive process that falls to him.

With every man in the industry thus engaged in producing there are none who can give time to the instruction of the beginner. The old time apprentice, who was taught the intricacies of the entire craft by a masterworkman, has no place in the modern factory. The beginner is started upon some special branch, to handle a single machine. Here he is expected to develop as quickly as possible into an efficient machine tender, a valuable producer. When an expert in handling one machine he will be kept there. To learn a new machine means a slower rate of production, even possible derangement of the machine itself and the spoiling of some raw material. There is little or no opportunity for the beginner to master all the processes of the trade in which he is engaged. Only by going from shop to shop and often from town to town does he get a chance to gain access to a new machine and thus get a wider outlook.

Among the boy graduates from the Crane Technical High School, Chicago, who go into the works of the Western Electric, frequent complaints are made that they never have an opportunity either to learn or scarcely to see what is being done outside their own little department.

Yet there are few industries in which a very large proportion of the men employed are not required to possess a large amount of skill. This is especially true in metal working, in the making of all glass products and in the printing trades.

That much difficulty is experienced in various industries in obtaining or training skilled workmen is shown by the recently published report of the New York Department of Labor.[1] This report states that of 1,118 establishments reporting, 569 state that they have difficulty in obtaining skilled workmen. The trades in which this difficulty is the greatest are the metal and machine trades, the printing and clothing trades and the glass industry.

Of the 1,166 concerns reporting on the number of skilled workmen trained in the establishment, 74 stated that "all," 435 reported that the "majority," 437 stated that "few," and 210 that "none" were so trained.

The apprentice system, in the modified form in which it exists in modern factories and shops, is not, apparently, sufficient to supply skilled workmen. The report of the New York Labor Bureau on this point for the state of New York may be taken as characteristic of other localities. Of 460 establishments, belonging to six industrial groups, reporting on the question as to whether the apprentice system meets the need for skilled workmen, 309 state that it does not. The number of apprentices to employees in these various establishments is 4.8 to each 100.

Even in so far as it exists the apprentice system, as at present conducted, is open to various objections. Young men object to the low wages paid to apprentices and it is held that many apprentices learn a trade in two years and practically do a journeyman's work at one-third a man's pay. That there is justification for this objection is shown in the fact that in not a few trades, such as foundry work, piano making, printing and carpentry, apprentices may begin as low as $3 to $4 per week with a very slow rise. It is, therefore, held that skilled work is often obtained as cheap labor under the guise of the apprentice system.

A further objection is that the so-called apprentice is given practically no assistance to obtain a broad training in his craft, that the system trains only in a narrow field of work, fitting the youth merely for some special line and that in no sense is there given the through instruction, both practical and theoretical, that produces a finished workman.

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[1] Department of Labor Bulletin, State of New York, Sept., 1909.

The second social force that has brought the question of industrial education to the front is the close competition that exists between commercial nations. It would seem that in proportion as a country has lacked abundant raw materials it has seen the importance of creating highly skilled labor in order to manufacture cheaply the raw materials of other countries and thus maintain itself industrially. Germany early saw the necessity for an industrially trained people if it was to compete in the world markets, and it is probably the high technical skill of its people that has put the German Empire in the forefront of industrial nations.[1]

Albert A. Snowdon in a study of the technical schools of Wuerttemberg, makes this statement, "When it is observed that Wuerttemberg is also producing its share of the agricultural output of the Empire . . . what the industrial achievement means in the face of natural disadvantages, becomes clear. It means that Wuerttemberg workmen have taken their place in the front rank of that industrial army that is fairly started on a conquest of the world trade. No one in possession of the facts will deny that this campaign has been well planned, or that Germany is making rapid progress in this direction. England has already been successfully invaded, and the 'practical Yankee' set at naught. Take this illustration, as one of many, the single item of machinery and tools. Germany's sales to the United States have doubled in the five years from 1900 to 1905. Meanwhile American sales to Germany, in this line, are now about one-third of the totals of five years ago. For the same period, Germany now sends to England twice as much finished products, receiving only two-thirds the former imports. To Sweden, Denmark, Argentine and Chile, Germany now sends double the quantity of machinery and tools exported five years ago, while to China it sends five times the former amount. . . Our consuls, importers and manufacturers who are in touch with the situation seem to have agreed that this successful German invasion of the world's markets is the logical outcome of the greater average efficiency of her workmen."[2]

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[1] Albert A. Snowden: The Industrial Improvement Schools of Wuerttemberg, Teacher's College Record, Columbia University, Nov., 1907.

[2] The Industrial Improvement Schools of Wuerttemberg, Albert A. Snowden.

To-day in Austria, Belgium, Germany, Switzerland, France and Italy state aid to support industrial education is considered a national duty. Japan, just pressing forward as an industrial nation, is taking up the question of technical education. Those best acquainted with conditions in China hold that thorough industrial training is the thing most essential in that country to bring it into the rank of a commercial power.[1]

The intense industrial struggle that is forcing the question of vocational education into prominence is thus described by Omer Buyse: "The industrial and commercial nations of the world have entered into an ardent emulation to utilize and organize with a very frenzy a larger and larger share of the universal production and transportation. Prodigies of strategy are displayed in the effort to conquer the world market and to exclude competition. No means capable of increasing the efficiency of effort is neglected in the sharp struggle to reach every corner of the globe."[2]

The United States with great natural resources has until recently slighted the systematic technical training of its workmen. It is estimated that there are in the United States considerably less than 200 schools, wholly or in part devoted to manual training. Of institutions primarily devoted to training youth to those practical arts by which they may make their living the number scarcely reaches forty according to Carroll D. Clipfell.[3]

At present industrial education is being discussed practically both by employers and labor unions, and pedagogically by educators.

Economic conditions are putting new demands on the educational system. These demands are creating re-adjustments in both curricula and methods of work. Further there is at present a strong tendency toward public management of this phase of education.

CHAPTER II

TECHNICAL TRAINING IN CHICAGO PUBLIC DAY SCHOOLS

Not for two generations has there been so great an educational transformation as is taking place at present. The public industrial schools of Germany, England and France have long been an established fact. Private trade schools in the United States that have attempted to do the work done by European institutions have been of two classes, philanthropic schools and short term trade schools run for profit. These have been open to the objection that they turned out but half-finished workmen and men that, in times of industrial disputes, can be exploited in the interests of unfair employers.

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[1] William H. Brewster: The Evolution of New China, page 132.

[2] Omer Buyse: Methodes Americaines d'education generale et technique. page 7.

[3] Carroll D. Clipfell: The Practical in Modern Education, School Board Journal.

If industrial education is a part of the public school work, is managed by the public school authorities and subject to the control of the people, the serious defects of the private trade school can be avoided. This is the position of the great body of the industrial workers who are most closely affected by industrial education.[1]

The movement for industrial education in the public schools of Chicago has arisen in response to urgent social demands along the lines just designated.

Dissatisfaction with the results of the work of the present school curriculum together with the fact that so large a number of boys and girls leave school before even completing the work of the grades has created a demand for modifications in the educational system. Most of these boys and girls must find a place in industry. They are fitted for no kind of work and will fall into unskilled labor with little opportunity to advance.

Technical education in day schools is at present in Chicago conducted principally in two high schools, the Lane and the Crane. The Lane school is the one more recently established, is the better equipped and the larger. It draws its pupils from the north and west sides of Chicago, from about one-third of the population of the city. In September, 1909, 1600 pupils were enrolled in the school, all boys. It is significant that 50% of all the boys in the 17 high schools of Chicago are in these two high schools, the Lane and the Crane, and that when the Lane High school opened it reduced the percentage of boys in the Waller High school, also located on the north side of the city, from 25% to 6%. The Lane school has graduated but one class, and of that class it is estimated that not more than 12½% went to college.

The work done in the two technical high schools does not differ in any essential points. There are three courses of study offered in these schools, a Latin, Modern Language and Scientific, but in the technical work there is no difference in the three courses.

Three years of shop work are required of all students and four may be taken. During the first year eight hours a week are devoted to shop work. The first year is given to wood work, and of the forty weeks ten are devoted to joinery, ten to cabinet work, ten to wood turning and ten to pattern making. As the first exercise in joinery the boy is given a block of wood and required to plane it to a given size. He is next instructed in the making of plain joints such as those used in table legs, and finally in dovetailing. In all this work emphasis is laid on accuracy, the object being to secure the making of, as nearly as possible, a perfect joint. Speed does not seem to be taken greatly into the question, but inaccurate, wobbly joints indicating careless poor workmanship are frowned upon. It is a question of acquiring skill, of perfecting technique.

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[1] See Report of Special Committee On Industrial Education, appointed by A. F. of L., 1906.

In cabinet making the principles of furniture construction are studied and applied to the construction of simple pieces of furniture, such as small tables, umbrella racks, etc. In all this work, also, care in construction is required. Emphasis is not laid largely on the boy's designing or setting problems for himself, but it is required that some problem set for the boy shall be executed by him with the greatest amount of skill.

The wood turning, which introduces the boy to various lathe tools with their application, leads directly to pattern making, the last phase of the wood work. Here patterns of parts of machines are made with due attention to the principles of shrinkage and finish. Methods of constructing various types of patterns, such as simple parted and split patterns, are taken up.

All of this work is done from blue prints prepared by the boys in their classes in mechanical drawing. Lecture rooms are attached to all shops, and machines for the instructor to use in demonstration are found in the lecture rooms.

The second year's work is done in iron. One-half of the year is devoted to forge work, one-half to foundry work, and ten hours a week are given to the work. The students are first taught the heating and forging of soft iron, soft steel and tool steel. The making of bolts, exercises in welding and tempering are given, and finally the making of chisels and other tools completes the work. All the modern machinery, steam hammer, drill press, etc., used in forge work have been installed in the school for the use of the students. To come into still closer contact with actual forge work the students are sent from time to time to visit and inspect nearby shops. Aside from the actual shop work some time is given to studying and writing up in plain concise English, short exercises on iron and steel, its location, nature, uses and the processes of handling.

The second-half of this year is devoted to work in the foundry. Instruction is given in molding in green and dry sand, and the students work in bronze, iron, copper, brass, pewter and aluminum. Management of furnaces forms a part of this work, and aside from the practice-work lectures on the physical and chemical properties of metals are given.

The third year is spent in the machine shop. Six hours a week of work are required. All of the machines found in modern shops are installed for practical work. These include hand lathes, milling machines, drill pressers, shapers and planers. The boy, by practice, is made acquainted with all the various machines. In this year the student is expected to make the parts and fit together either a steam engine or a cannon.

The fourth year shop work is elective, and is done in electricity. The student is required to design and build a motor. He is provided with the raw materials and himself makes all the parts.

Mr. Ernest Andrews, who is the instructor in this department in the Lane High school, described the manner in which he conducts the work. "As far as possible I make the work such as it would be in a factory. I instruct the boys that speed, which means time, is an important thing to an employer, and that work must be done well in the least time. Second, each boy is not allowed to do all of a process, a few make all the blue prints, a few punch all the dies. That is the way work is done in a factory and the boy should be made familiar with the way things are done in the factory from the very beginning. A teacher should be a foreman, not always gentlemanly, but should order the boys about as they will be in actual industry."

Mr. Andrews lays much stress on the need of theoretical as well as practical work, otherwise the student will be unable to deal with new conditions. Therefore he would have most of the student's time spent on principles not on particular things. The works that have aided him most as an electrician, Mr. Andrews holds, are the writings of Herbert Spencer because of his logic and economical style, representing the least effort in expression. So in teaching industrial subjects, Mr. Andrews would train the student to accomplish all his work with the least amount of effort.

Mechanical drawing, freehand drawing, and machine and architectural drawing are taught in the course. Aside from mathematics, the other sciences taught are physics, chemistry, physiology and physiography, and in the two first, especial stress is laid on those principles that can be applied in the practical work of the shops. English is taught with special reference to letter writing, primarily business letters. Exercises in English consist in working out topics that have a bearing on some phase of the work of the shops. Civics and American History, with an elective course in Economics, are the only other subjects taught in the school.

Principal W. J. Bogan of the Lane High school believes that the course of study as it now stands has too much so-called "cultural" work and that more time should be given to fitting the boys for trades. He said, "I would have a real trade school under the same supervision as other high schools. In this trade school I would have, perhaps, a little history but much less of the academic than is found in this school. Further I would have vocational training begin in the kindergarten."

In selecting teachers for the handling of shop work some difficulty has been experienced. Two classes of teachers have been tried, but both have shown defects. Manual training teachers are found lacking in skill. This the students soon discover. As teachers, however, they are superior to the second class who are workmen, practical carpenters, blacksmiths, etc. These have much greater skill than the manual training teachers but are lacking in the elements that make good teachers.

At the Crane Technical High school the course of work is the same as at the Lane. Mr. Samuel Ritchey, head of the shop work, holds that theory and skill should receive equal emphasis. He considers both history and literature as necessary in the course, especially in wood work, since the student must have this knowledge in order intelligently to design his work and to know what has been the development in the work in wood. Mr. Ritchey would lay emphasis on the styles of architecture and furniture with their historical setting and gives much attention to the art element in the work.

He disapproves of the school shop being run on the principle of a factory. Students should perform all parts of the process or at least be instructed in every phase, and under no condition should there be a passing on of a piece of work from one to another as is done in a factory.

Further Mr. Ritchey holds that the work at the Crane school is so fundamentally educational that men entering professions would be aided by taking it, for instance, a dentist would be benefited by a course in the machine shop.

On the attitude of the school toward trade union organizations Mr. Ritchey said, "I have no sympathy for unions and trust that the boys under my instruction will never affiliate themselves with any labor union."

In addition to the work of the Lane and Crane schools an entirely different plan of procedure has been worked out at the Farragut school. It is planned here to form a continuation school. Classes are to be organized that will permit boys to work a part of the time and attend school a part of the time. The school authorities have visited the superintendents of nearby factories and secured promises to take boys who attend school and to pay them for the time they work in the shops. The boys are to work in pairs. One boy will attend school for a week while the other works in the shop. On Saturday the boy in school will work in the factory with his mate so that he will be able to take up the work of the factory without any break. In this way the boys will change off, one being in school while the other is in the factory.

The course will take two or more years. The shop work will consist in handling stock, learning the use of tools and the operation of machines. The school course is planned to aid boys to learn more quickly the work of the shop. The work at the school will consist of mechanical drawing, freehand drawing, workshop mathematics, English, history of industry, current events and civics.

Except in a few cases no boys entering these classes will be taken if not at least sixteen years of age. This is because the employers do not want boys younger than sixteen, since the law does not allow the employment of boys between fourteen and sixteen more than eight hours a day.

Miss C. M. Towles, assistant principal of the Farragut school, pointed out that many boys drop out of school in the grades, that these boys then go to work when old enough but have no opportunity to secure any further education and are ashamed to enter lower grades. For these boys it is planned to organize work according to their needs. Industrial classes for girls are also planned at this school. The course is arranged to cover one or two years. Work is given in sewing by hand and machine, in drafting and cutting simple patterns and garments. A study of foods, including food materials, composition, uses, sources and methods of manufacture, with practical work in cooking, forms a part of the course. Cooking for invalids, home nursing, sanitation and hygiene are also offered. It is proposed later to find employment for a portion of the time for the girls outside the school in the same manner as for the boys.

Aside from the details of the work done in these schools there were certain other noticeable features. The question of discipline seemed to be entirely solved. At no time even when the boys were in extremely large groups, was there anything indicating other than healthy order. The boys moved freely from shop to classroom and back again with slight oversight but with the demeanor of well-ordered persons attending to work. In many shops a large number of boys were working with but one instructor present, but in no instance was there apparent any neglect of work.

The close attention and interest that was evident in the shops was equally apparent in the class work. Here at least were two directions in which economy was evident. First, little energy was expended in enforcing discipline, second, the close attention manifested by the boys showed that their mental energy was being utilized to the best advantage.

CHAPTER III

INDUSTRIAL EDUCATION IN CHICAGO PUBLIC NIGHT SCHOOLS

The purpose of the continuation night schools is to offer opportunities for study to those workers who are obliged to leave school before they have completed any regular course. The work is arranged to meet the needs of artisans who desire special training in the occupations in which they are engaged.

Commercial education is so closely allied with industrial that courses are also provided for commercial studies for the benefit of clerks, stenographers and book-keepers. There is no expense involved in attendance at these schools beyond a comparatively small sum required for books.

For years the Chicago night schools had done little more than teach the use of the English language to immigrants. The change in the character of the work of these schools has come in the last two or three years, and the curricula are now patterned after the European continuation schools.

These schools also meet the needs of boys and girls between fourteen and eighteen who are already engaged in industry. Comparing the amount spent for youth in favored conditions of this age who are fitting themselves in high schools to enter professional schools, former Superintendent Cooley says, in defence of the night schools, "There is no legitimate reason why the unfortunates who are compelled to leave school and go to work at fourteen should not receive such instruction as it is possible for them to profit by. They can make as legitimate a demand on the finances of the Board of Education as any class of people who are now attending the schools." [1]

The night schools are held at the Crane Technical High School, the Lane High School, the Lake High School and in the Athenæum Building. They differ from the day schools in that those who attend are largely adults already engaged in work, many of whom have dropped out of school in the fifth or sixth grades. There are blacksmiths' helpers, who have come here to secure access to a "fire" and anvil so that they may become blacksmiths; clerks, who come to take book-keeping in order to become book-keepers.

The courses offered in the night schools are practically the same as those of the day schools, with such additions in the way of advanced work as the maturity of the students would require.

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[1] Fifty-Fourth Annual Report of the Board of Education, City of Chicago.

The work is divided in eleven groups: wood-work, metal-work, drawing, applied science, engineering, applied mathematics, English, modern language, domestic science, and physical culture.

The wood-work includes courses in wood-turning, cabinet-making, carpentry, joinery and pattern-making. The metal-work covers practice in the foundry, in blacksmithing, tool-making and in the machine-shop.

Physics and chemistry are the two sciences taught. Physics covers such topics as forces and their applications, falling bodies, pumps, the hydrostatic press, sound, light and electricity. In the course in chemistry practice is given in the formation and detection of the simple gases, oxygen, hydrogen, chlorine and carbon dioxide; the formation and reaction of acids, bases and salts, and the analytical tests of the metals and acids. More advanced work is given in qualitative and quantitative analysis. In the latter course the work covers food analysis, iron and steel analysis, gas and water analysis, electrolysis and organic chemistry.

In engineering the first part of the year is spent on mechanics and heat, the last half of the year on electricity. The course is intended to provide the theory of electricity necessary for the practical mechanic.

The work in English is similar to that in the first year of the high school. Attention is given especially to spelling, composition, business letter writing, grammar and English literature.

The commercial courses include work in book-keeping, stenography, type-writing, commercial arithmetic, business correspondence, simple accounting and commercial law. In the latter course the law that relates to ordinary business aransactions, the law of contracts, sales, and commercial paper tre taken up.

The night schools are meeting with a steadily increasing demand for their services. The Lane school at its opening in 1908 registered 500 students. In October, 1909, the night classes at the same school registered over 1,500.

No statistics are as yet attainable for the nationality of those attending the Lane school. Of the 450 registered at the Crane night school, 208 were Americans, 76 Germans, 39 Irish, 22 Norwegian, 14 each Russian and Bohemian, 10 each English and French. The remaining 57 were of foreign parentage of various nationalities.

CHAPTER IV

MANUAL TRAINING AND INDUSTRIAL EDUCATION

One cannot investigate far into industrial education without discovering that there are some serious points of disagreement between many of those who are carrying on the teaching of industrial education and the advocates of manual training.

Industrial education means education directed primarily and expressly to the preparation of young men and women for vocations. Robert M. Smith, Superintendent of Manual training in the Chicago schools, says of manual training, "It is a series of exercises which require for their satisfactory execution the coöperation of the eye, of the hand and of the head, and which especially have for their end the education of these two first organs under the direction of the third." He lays especial emphasis on its educational importance and its moral influence.

In an address before the Chicago Manual Training Association, Superintendent Smith summarized the value of manual training, which he considers a carrying out of the theories of Froebel. "Manual training makes the children alert; it makes them more intelligent; it is entirely a training of the intelligence, and there is no getting off with guess-work; it cultivates the power of rapid observation. . . . It makes the children from the very first attach great importance to exactness; it goes to develop the inventive faculty." Manual training courses are given in all grades of the Chicago public schools. Since the manual training work approximates industrial education in the seventh and eighth grades only, the other grades will not be discussed.

In the seventh grade various processes in wood are taught such as beveling, boring, gauging, cope sawing, gluing and nailing, surfacing and fitting, original designing and outlining. The student is taught these processes in the construction of various objects, such as bread-boards, easels, flower-stands, book-racks, etc. The eighth grade takes up mortising, dove-tailing, counter-sinking for screws and fret work. Some of the objects suggested for the students to make are foot-stools, magazine and plate racks, knife boxes, etc.

At first this work may seem very complicated when compared with the fact that the boy in the Crane High School is first set merely to planing a block to a certain size, then is led to plain joints and dove-tailing after considerable time and practice. Mr. Samuel Ritchey, of the Crane school, criticises manual training on this very point. He holds that too much is attempted, that the work is not well done, that fitting and planing are done poorly and slovenly, and believes that the time spent in manual training, as at present conducted, is lost. "Why," said Mr. Ritchey, "cannot a boy be trained at first to make a good joint? Why must I, in the high school, go over all this work that might have been done in the elementary school? It is absurd to put boys who cannot even plane true to making card tables, and other complicated things, that are wobbly and poorly done."

Miss Mary Snow, Director of Domestic Science in the Chicago schools, gives an explanation of the relation which she holds exists between elementary manual training and technical training in the high school.

In reply to the criticism that it is absurd to set seventh and eighth year boys to making complicated objects, she says: "The primary object in elementary grades is self-expression. The pupil designs some object in which he expresses himself; perfecting of skill is not of first consideration. When the boy enters the high school the object is changed. It now is a question of perfecting technique. For that reason great accuracy is dwelt on. After skill has been acquired there will again come a time when designing, self-expression, will be possible; this will mean the awakening of a second self-consciousness."

The unfavorable opinion of manual training entertained by some teachers in industrial courses, apparently on the ground that the manual training does not aid in giving the skill and speed so requisite in vocations, is not shared by Thomas Balliet, Dean of the School of Pedagogy of New York University. He holds that specific instruction in trades should be preceded by a broad course in manual training. "Manual training is to specific trade instruction what a liberal education is to strictly professional study."[1]

The position of the advocates of manual training on the one hand and industrial education on the other is best secured through the statements of representative educators on each side. Edwin Cooley, criticising the manual training advocates says: "Educators and others have got into the habit of defending the positions they take on curricula from the standpoint of something they call discipline and culture. . . . If manual training is under consideration, it is thought to be bad form to take into consideration its value from a vocational point of view. We are expected to show how it sharpens the powers of observation, and helps toward clear-cut thinking. To defend it from the point of view of its utility has been regarded as an undue concession to material standards of modern life. Our defense of each of the fads, such as drawing, household arts, etc., has been along the same line. It has been reserved for some very modern thinkers on education to come out squarely for vocational subjects as a part of the common school curriculum."[2]

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[1] Aim of Industrial Teaching in the Public School System.—Thomas Balliet, School Board Journal.

[2] Educational Bi-Monthly, February, 1908.

On this point the Massachusetts Report on Industrial Education says: "The wide indifference to manual training as a school subject may be due to the narrow view which has prevailed among its chief advocates. It has been urged as a cultural subject mainly useful as a stimulus to other forms of intellectual effort, a sort of mustard relish, an appetizer,—to be conducted without reference to any industrial end. It has been severed from real life as completely as have the other school activities."

W. J. Bogan, principal of the Lane High School, holds that the inadequacy of manual training has been largely due to the fact that in many cases it has been hitched on the course of study by the classicists who estimate all human activities by their cultural value.

R. M. Smith, believes that the different occupations coming under the head of manual training, for instance, clay modelling, are not taught "to make all our children sculptors, what we wish is to train the children to habits of observation and attention. Neither in teaching card-board is it the object to flood the market with bookbinders, any more than we teach our boys drawing that all may turn out draughtsmen, or our girls needlework that all may become dressmakers. It is rather that in the process of card-board work the children may be taught lessons in accuracy, neatness, judgment, self-reliance and truth."

Mr. Smith makes a distinction in the methods of teaching manual training. One group follows the method of technical elements. This consists of the child's preparing the detached elements, each element designed to lead the child into one particular operation. These elements may, or may not be assembled into an object. This method, he holds, is that of the workshop, it is the method of trade instruction. "These have no other end in view than the trade apprenticeship, ignoring the needs of the elementary school, they neglect the educative side of the work and likewise the service which it can render to general instruction."[1]

The second method, which is the one followed in the elementary schools of Chicago, is called the "method of useful objects." In this the child, completes some object. Instead of making elements that are not brought together in any object, the child prepares the "parts of an object so that they may be assembled and form an object which can be utilized. . . . This method originated, not in the workshop, but in the family and also in the school. Its end is not to make workmen for any determined trade but prepare the pupils for the study of any trade, to render easier the apprenticeship of the manual occupation chosen later, to develop a general dexterity and to contribute to the work of education and instruction which is the double object of the school."[1]

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[1] From an unpublished lecture on "Aims and Scope of Manual Training," by Robert Smith.

The question apparently reduces itself to a one-sidedness in both directions. Many of the manual training advocates have seen only the cultural side, and have been satisfied with poor craftsmanship and have felt that skill which could be utilized in the economic world brought the work of the school down to too low a plane. The industrial education advocates, on the other hand, give no attention to the cultural and see little more than the production of good cooks and carpenters.

The Pratt institute of New York has attempted to secure the acquiring of skill under conditions that are educational. Good workmanship is required, but it is not acquired through merely planing an isolated block of wood; it is acquired in the process of making something in which the boy is interested and has himself designed. Technique should not be secured at the price of turning out pupils who have had all individuality destroyed, whose initiative and power of thought have been spoiled.

Any form of democratic education that puts the perfecting of human machines whose sole function is the production of wealth as the ultimate end must be a failure. Men and women must be trained as good citizens and this cannot be done if an educational system is to consider only the method of turning out economic producers.

Results must be measured, not alone in terms of wealth units, but in terms of human development. On the other hand, it is also true that any study that is removed from the actuality of life, that produces no results is equally wide of the mark.

CHAPTER V

ATTITUDE OF ORGANIZED LABOR TOWARD INDUSTRIAL EDUCATION

In studying industrial education it becomes necessary to consider the attitude toward such education of that large body of men and women making up the trade union movement and numbering in this country about three million. They are among the most intelligent in their various trades, and, usually working an eight hour day, have most leisure for study. Moreover, they exert not a little influence in determining public opinion upon various questions.

They constitute a portion of a large class that is most vitally interested in the problem of the manner in which industrial training shall be worked out.

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[1] *Ibid.*

The statement frequently met that organized labor opposes industrial education seems, after an examination of the records of their conventions and the activity of the various unions, without foundation. In 1908, at Denver, the American Federation of Labor appointed a special committee on industrial education. That committee reported at Toronto in 1909.

The substance of the report may be summarized. First, the organization condemns any system of public instruction privately controlled. It recommends, therefore, that any technical education of the workers in trade and industry, since it is a public necessity, should be a public and not a private function, that it should be conducted at public expense, by the public. For this reason the organization favors the establishment of schools in connection with the public school system, "at which pupils between the ages of fourteen and sixteen may be taught the principles of the trade."

Second, trade union organizations are opposed to narrow and prescribed training in selected trades. "The boys and girls of a country must have an opportunity to acquire educated hands and brains such as may enable them to earn a living in a SELF-SELECTED vocation, and acquire an intelligent understanding of the duties of good citizenship." They oppose making "the future workers mere automatic machines."

In several unions the necessity for technical training has become so apparant to the members that they have organized schools themselves to supply industrial training to those who belong to their organizations. The International Typographical Union was one of the first to take this up. The problem was to adopt a plan that would help both the high art metropolitan printer and the rural printer; to reach men working not alone in the United States but in Alaska and the Hawaiian Islands. The problem was solved through a correspondence school. The course consists of thirty-seven lessons that have to do with lettering, design, color harmony, composition, paper-making, plate-making and imposition. Thirteen hundred students are now enrolled in this one school.

It is sometimes objected that the unions maintain no standard of workmanship as a test of membership. The statement of the aim of the Typographical Correspondence School shows that in fact they stand for what is essentially educational, and those methods that produce artisans that are artists. The aim of their technical training is thus stated in the opening of their course of study: "In all previous typographical educational efforts . . . students were told that a certain class of work was good and another class bad, and the amount of benefit they derived from the education depended very largely upon the quality of their respective memories. The student with a good memory and without well-developed reasoning often excelled a colleague not happily endowed as to memory but who possessed a well-ordered and logical mind. The commission was impressed with the desirability of adopting some system of education that would arouse the thinking faculties of the craft, thereby enabling compositors to use to the fullest extent that particular knowledge and skill which may be tersely expressed as typographical sense.''

Several other unions are already carrying on similar work or contemplating it. These are the stereotypers, photo-engravers and pressmen.

A unique plan of industrial education has been worked out in Chicago by the Carpenters' Union. The plan is to have the apprentices in the carpenter's trade take three months a year or more in the public technical schools at the expense of the contractor hiring the boys, and under the supervision of a joint board which is composed of representatives of the Carpenters' Union and the employers.

This matter is covered in the apprentice rules adopted by the joint arbitration board of the Carpenters' Union and the Master Builders' Association. This reads as follows: ''The contractor taking an apprentice shall engage to keep him at work in the trade for nine consecutive months in each year and see that during the remaining three months of the year the apprentice attends school during January, February and March, and a certificate of attendance from the principal of the school attended must be furnished the Joint Arbitration Board as a compliance with this requirement before he is allowed to work during the coming year.''

During the session of the school last year nearly three hundred apprentices were in attendance at the technical schools. The course of study centres around architectural drawing and mathematics. Considerable attention is given to spelling and penmanship. Geography and history are taught in a minor degree. ''The trade school system which we are seeking to establish in Chicago and which has been very successful up to the present time, is the only one of its kind in the United States,'' says John A. Metz, president of the Carpenters' District Council. Arrangements are being made this year to enter these apprentices at the Crane, Lane and Lake technical high schools.

So large a number of girls and young women have entered industry that the unions have not remained unmindful of the needs of these. The position of organized labor as stated in the report of the American Federation of Labor committee on the industrial education for girls may be summarized. There should be a double aim in the industrial education of girls. First, there must be preparation for an occupation for immediate support. A large part of the girls now leaving school at fourteen must prepare to earn their living in industry. To these the prime interest will center in training for wage-earning. Second, training for home life. The fact is pointed out that to the young girl ability to earn money seems of such prime importance that she is inclined to minimize the need of training for domestic life, which will be of vital importance to her later. Further, the point is dwelt upon that if girls work in shops and factories they should be trained for occupations that will not be injurious to them, and incapacitate them for future mothers and home-makers.

Trade schools, giving domestic training should aim at two things: First, specific training for those who intend to make a wage-earning vocation of house-keeping in all its branches; second, a thorough training for those who wish to be prepared to conduct homes of their own.

John Golden, President of the Textile Workers' Unions, states the position of the unions on industrial education. "The same keen desire is in the hearts of all parents to see their boys make good, not as industrial specialists, as simply parts of a machine, where nothing counts but speed and production, but as men and women whose early training and education will equip them to grasp the higher technique of any trade or calling they may be best fitted for, to know the way a thing is done, why it is done, and the very best and most artistic way of doing it, coupled with an economic knowledge of the value of their labor. This, I believe, is the kind of industrial education needed. Let us all coöperate in promoting and establishing it under public control, at public expense and for all the people."

CHAPTER VI

SUMMARY

With the rapid rise in importance of industrial education society is confronted with certain problems as to administration, and methods to be followed. It is now generally agreed that these schools must be conducted as a part of the public school system. It is well pointed out by J. S. Brown, principal of the Joliet schools, that separate schools educating separate groups will be a blow to a democratic system of education because it recognizes social classes and will help to foster them.

He further calls attention to the tendency of such schools to stratify society and array one element against another, and shows that on economic grounds public industrial education can best be worked out in connection with the public school system.[1]

There is also a danger that if industrial education is separated from the public school system that the high schools will become little more than girl's schools, or preparatory schools for college courses. E. Davenport takes the position that separate schools, if allowed to handle this problem, will give industrial training and not education, that they will create operatives not citizens, and that in case of agricultural schools they will turn out a class of peasantized farmers.[1]

The reaction against the old classical education, to which the objection was made that there was an acquirement of knowledge to no purpose, has in it the danger that the pendulum may swing too far in the other direction and lead to too great emphasis upon mere acquirement of operative skill—that we shall magnify training and minimize education proper. Technical training, properly undertaken, may be highly educational, but any attempt to secure industrial efficiency by entirely eliminating all cultural subjects will be socially destructive.

Industrial education that sees only the creation of human machines, that will as quickly as possible be able to create wealth, must in the end defeat social progress. While it is necessary that each individual shall be fitted to earn his living, there are different ways of educating a boy to do this. Mechanical skill is not all. Education should be such that it helps a man to see his trade in all its bearings, that it enables him to understand its theoretical foundation, that it puts intellectual activity behind the routine of work. It should produce men who have a broad interest in other activities, who have the capacity profitably to spend their leisure, men trained both vocationally and liberally, whose outlook is not confined to their own little trade but who intelligently understand other activities.

It is a serious social problem when social groups are unable to interpret each other, from the fact that some are trained to manual work only, others to intellectual. The educational question society must solve is how to produce all-around men and women who are efficient social agents.

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[1] "On Commercial and Industrial High Schools vs. Industrial and Commercial Courses in High Schools," in Proceedings of the North Central Association of College and Secondary Schools.

[1] E. Davenport: "Education for Efficiency."

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BOOK NOTES

J. B. Basedows Elementarwerk, mit den Kupfertafeln Chodowieckis u. a., herausgeben, von THEODOR FRITZSCH. Leipzig, Wiegandt, 1909. 3 v.

These two large volumes, with a third reproducing the nearly one hundred large illustrations in copper plate of Chodowieckis, constitute a work of very great merit and will be welcomed by every teacher of the history of education throughout the world, who should know them and have them in the library of his institution. From their perusal, one realizes again that, even more than the history of education represents, Basedow was one of the great leaders and lights in pedagogy, with an originality and boldness rarely found in pedagogy. He is in the line of Comenius but carried nearly all his ideas much further. The best beginning is the plates, which here fill ninety-six large pages, with four or more cuts on most of the pages, which Fritzsch and Gillou have characterised with admirable historic insight. The whole work is reproduced in the style current in Basedow's day. The idea of this very carefully chosen and elaborated series of pictures is to reproduce every characteristic incident of human life and make this the centre of all instruction. The first cut, for instance, shows a mother nursing her baby, with an older child helping, while a nurse feeds another, and still another is eating from a well-spread table. The rest of the picture is filled with all kinds of marketables. The second represents a large family at a richly spread table, the father and the older girl rising to feed a beggar who has just come in. Then comes a wardrobe with all sorts of clothes for men and women hung up, then children engaged in four different kinds of mischief, then a collection of habitations from the savage tent and hut to an elaborate city building, then a long series of games, followed by various wild and domestic animal groups, mountain and geographical scenes, etc. The author was severely criticised in his day for including pictures of a woman who had just borne a child, with a nurse and doctor present, surgical operations, hospital scenes, representations of faults, even an execution on the gallows, a dissecting room, the slaughter and dressing of animals, funerals, deathbed scenes, the devil, drunken people, types of crime, war, a hold-up scene, various forms of temptation; but his defence was that the child must know life. He also represents the most characteristic lines of industry and human occupations, circuses, acrobats, naval scenes, battles with savages, conflagrations, incidents of war by sea and land, martyrdom, athletic contests, fortresses, cathedrals, church scenes, shipwrecks, earthquakes, etc. Few people did more than Basedow to increase the dignity of the teaching profession, to give pedagogy recognition in the university, to stress industrial, moral, sexual pedagogy and patriotism. This work has already been received in Germany with distinct acclaim. It is on the whole a monumental work.

L'éducation des anormaux. Principes d'éducation physique, intellectuelle, morale, par JEAN PHILIPPE et G. PAUL-BONCOUR. Paris, Alcan, 1910. 212 p.

This work begins with a brief sketch of the results of medico-pedagogical study which has been applied to classifying abnormal children and then proceeds to give certain general principles pertaining to their physical and essentially moral education, dwelling especially upon memory, imagination, attention and character. They describe step by step the various stages of the development of these children and dwell upon various methods that have been proposed. It seems very singular that in these days of rapid and now great differentiation of the different classes of abnormalities these authors should still follow the old psychological rubrics when the different types of children involved have so little in common. We should have expected, too, a good discussion of the work of Binet in establishing norms, for this is by far the most important work in this field of recent years.

Household foes. A book for boys and girls. By ALICE RAVENHILL. London, Sidgwick & Jackson, 1910. 359 p.

The object of this excellent little book is first to arouse the interest of young people in the practice of daily domestic cleanliness and to give them reasons adapted to their comprehension for the new demands made upon their perseverance and energy. The second purpose is to indicate the possibility of forging links between school lessons and home habits and to encourage the application of the former and to add dignity to the latter. The practice of healthy living in the twentieth century is by no means easy, especially as so many things once optional have become now obligatory. Hygiene teaching must be greatly increased. The most attractive of the eighteen chapters are on the causes of dirt at home and how to control it; visible and invisible enemies in the air; damp air as a source of dirt and decay; living sources of dirt, visible and invisible; the first visit to a dilapidated house, the second visit; Aunt Rachel's microscope; imperial safeguards.

Medical examination of schools and scholars, edited by T. N. Kelynack, with an introduction by Sir Lauder Brunton. London, P. S. King & Son, 1910. 434 p.

The Education Act of 1907 began a new era in the health of British children and this wise and vigorous leader in child study and welfare, who already wants to establish a national bureau devoted to this subject, has collected a list of twenty-three lectures by experts upon different aspects of the subject. E. W. Hope discusses correlation of the school medical service and that of public health; Dr. Reid and Dr. Howard, medical examination of schools; Dr. Dukes' examination of boys; Dr. Alice Crothorn, that of girls; Dr. Edwards, that of children under the poor laws; Dr. Melville, the army; Dr. Simey, medical supervision and games, and so by the other writers the eyes, ears, nose, teeth, defective minds, school clinics, feeding, open air schools, school nurses, examination of the teacher are discussed. Then follow a series of a dozen chapters on medical examinations of schools and scholars, medical inspection in the schools of different nations, Scotland, Ireland, Wales, Canada, Australia, New Zealand, United States, Germany, France, Norway, Sweden, Denmark, Switzerland. This is the best compend on the subject just now that exists, as indeed it ought to be, since it is the latest. Many of the authors append useful literature.

Report of the medical officer (education) for the twelve months ended 31st December, 1909. London County Council. London, P. S. King & Son, n. d. 96 p.

This is a thorough and scientific report upon elementary schools including buildings, anthropometry, teeth, medical examinations, etc. Then follow training colleges for higher education, school nurses, medical treatment, dust allaying, preparation, teaching of writing, stammering, vision, the infectious diseases and finally, special schools for mental defectives, epileptics, blind, deaf, with sections on open-air schools, continuation, etc.

Moral education by A. G. FLACK. New York, Cochrane Publishing Company, 1910. 61 p.

There is nothing to indicate who this author is, what his experience has been, no index, so far as we observe, no reference to any other writer in this volume except two or three allusions in the preface. The virtues he stresses are truthfulness, justice toward material property, beauty and manners. The reader is left with the impression that the author is a woman.

Problems of the elementary school, by ARTHUR C. PERRY, Jr. New York, Appleton, 1910. 224 p.

This problem consists of two parts. The first is the broad and general one of organic structure; the second one deals with specific phases as planned by the teacher or principal. The first part is treated very slightly. The second discusses such topics as English in the upper grades, compensation, grammar, history facts, arithmetic devices, the blackboard, the museum, the alumni, and the care of adolescent girls. The author has great confidence in little details and special devices, but the great defect of this book is that on nearly every topic, save English, the author shows only the most limited acquaintance with the literature of the field he treats. Happy that the day has come when teachers are seeking broad comparative views of what is done in each field of education.

Le droit de l'enfant abandonné et la système hongrois de protection de l'enfance. Ouvrage publié sous les auspices du ministère royal de l'interieur de Hongrie, par ZOLTÁN DE BOSNYÁK et L. EDELSHEIM-GYULAI. Budapest, Imprimerie de la Société Anonyme Athenæum, 1909. 511 p.

After a preface by Count Andrassy of the Hungarian Academy, these authors discuss in the first book the rights in general of abandoned children. Then follows the legal system of protection of children by the state in Hungary. The third book treats of their protection by society, and the last characterizes the defences in that country which society has erected against the criminality of minors.

An outline of individual study, by G. E. PARTRIDGE. New York, Sturgis & Walton, 1910. 240 p.

This book is an outline of psychological, anthropological, biographical and other methods of study of individuals, intended primarily for the use of those interested in the study of children as individuals and also for students of education, teachers, parents and physicians. Part one is devoted to variability in the race and individuals, and parts two and three describe simple methods of studying the body and the mind to outline salient points and compare one person with another or with a group. The last part contains a study of twin children, a chapter on types and another on pedagogical aspects of individuality.

The standpoint of individuality is stressed throughout. The work constitutes a valuable addition to child study literature.

L'Evolution psychique de l'enfant, par DR. HENRI BOUQUET. Paris, Bloud & Cie., 1910, 101 p.

The author restates very briefly the best known facts concerning early child life verified by his own experience as an infant specialist. The book is addressed to teachers, physicians, students and the cultivated laity and hence is didactic rather than scientific.

Genesis; a manual for the instruction of children in matters sexual for the use of parents, teachers, physicians and ministers, by B. S. TALMEY. N. Y., Practitioners' Publishing Co., 1910. 194 p.

This volume, with its nineteen cuts and forty-seven drawings, is dedicated to the author's baby daughter. He discusses the prevailing silence on these subjects, the ignorance of parents, the alleged evil of education, the impossibility of maintaining ignorance, its evil and the need of information, the degradation of sentiment, moral confusion and a change of policy. The second part is devoted to special lessons. The first is for infancy and early childhood and then follow a lesson each for children from four to seven, from seven to ten, from ten to thirteen, from thirteen to sixteen, from sixteen to eighteen. The work contains a good deal of useful information, but the writer is not sufficiently informed on the literature of the subject and has not apparently mastered the literature of the Freudian School. At any rate, he does not make use of it.

Education in sexual physiology and hygiene; a physician's message, by PHILIP ZENNER. Cincinnati, Robert Clarke Company, 1910. 126 p.

This consists of talks to college boys on sexual physiology and hygiene and social diseases to which are added chapters on prevention of social diseases, teaching these subjects in the school, and the method and the teacher. It is intended as a message from a physician to the people. An experiment in which a lady teacher talks to girls and is followed by the author of this work, is described. The work is interesting and sensible, but the author does not appear to be acquainted with the literature upon the subject.

Text-book of school and class management, by FELIX ARNOLD. Volume 2, Administration and hygiene. New York, Macmillan, 1910. 288 p.

In the last number of this *journal* we reviewed the first volume, which is devoted to the relation between principal and teacher and class management. The present volume takes up the further problems of school control, organization, classification, hygiene, etc., and such aspects of administration as concern the principal, *e. g.*, the school building, personnel, function of the school and the board. The author tells us that "both volumes constitute a complete text-book of school management and administration in so far as these phases of school work concern both the principal and the teacher." This volume goes rather more into detail than the first.

A history of the United States for schools, by S. E. FORMAN. New York, Century Co., 1910. 419 + 71 p.

This history is rather full on the Western movement, which was regarded as one of the most imposing ever witnessed by man as well as one of the most inspiring for classroom purposes. It takes us down to Taft's administration, with much about cotton mills, Bell and

Edison, flying machines, harvesters and threshers, Peary and the North Pole, the Philippines, the Panama Canal, the St. Louis Exposition, etc.

Elements of United States history, by EDWARD CHANNING, in consultation with SUSAN J. GINN. New York, Macmillan, 1910. 349 + 60 p.

The author claims, in the presentation of this book, to have had constantly in mind the pupil's point of view, American in particular, and its development, and everything is made more interesting by being regarded as parts of a continuous whole. It contains many illustrations, maps, etc. But with all the many text-books on the subject in existence, it is not very clear that this has a *raison d'être*.

A bibliography of history for schools and libraries, with descriptive and critical annotations, by CHARLES M. ANDREWS, J. MONTGOMERY GAMBRILL and LIDA LEE TALL. New York, Longmans, 1910. 224 p.

This is an admirable work, done under the auspices of the Maryland History Teachers' Association by a committee appointed for the purpose. The lists have been several times revised and enlarged. Its scope can be seen by the topics under which the references are grouped: the study and teaching of history and historical aids, world histories, ancient histories, including antiquity in general, Rome and Greece; then European, English, American history (which is much stressed), and histories of countries not included elsewhere. Then comes a list of historical stories for the elementary school and for young children, preparatory to history rather than history itself.

A letter to American teachers of history, by HENRY ADAMS. Washington, 1910. 214 p.

This veteran, who was a leader in the newer methods of academic teaching of history, here sums up his experiences and observations with new ideas in a booklet of two chapters, one stating the problems and the other giving its solution.

The conflict of naturalism and humanism, by WILLYSTINE GOODSELL. Teachers College, Columbia University, Contributions to Education, No. 33. Teachers College, Columbia University, N. Y. City, 1910. 183 p.

The writer first treats the naturalism and humanism of the Renaissance, then in the 17th and 18th century, then in the German enlightenment and conflict of these two in the 19th century, with special reference to education. The last chapter develops the pragmatic theory of nature and of man in their mutual relations, the pragmatic theory of knowledge and its contrasts to both humanism and naturalism. The concluding section treats of the applications of pragmatic philosophy to education.

Seventy-third annual report of the Board of Education. January, 1910. Boston, Wright & Potter Printing Co., 1910. 285 + 83 p.

This report is of special interest as it is the first of the new board which took office July 1, 1909. This board found itself charged with the duties and responsibilities of both the state Board of Education and the Commission of Industrial Education, each of which had its own machinery for discharging important duties that belonged to it. To avoid any temporary injury of educational interests in the transformations that were necessary, the former secretary, G. H. Martin, acted as treasurer until the appointment of his successor. This volume is thus made up of reports from the different normal schools and the various departments, without the usual report from the secretary.

Report of the commission on the cost of living. May, 1910. Boston, Wright & Potter Printing Co., 1910. 752 p.

This commission was appointed March, 1909, organized March, 1910, and had to report May 1st, so that the time allowance was very scanty. The findings of the committee are that the primary cause of the world-wide advance of prices since 1897 is the increase of the gold supply, next comes the enormous waste of income by uneconomic expenditures for war, extravagance and wastage generally. The third cause is complex. On the side of supply, the effort is to reduce the volume and increase the expenses of raw material and on the side of demand, to extend and diversify the consumption of this as to tariffs, trusts and unions which have been thought to be either primary or contributing to the high cost of living. The commission thinks that "none of these factors can be regarded as a direct and active cause of the recent increase of prices."

Social and mental traits of the negro; research into the conditions of the negro in Southern towns. A study in race traits, tendencies, and prospects, by HOWARD W. ODUM. N. Y., Columbia University, 1910. 302 p.

The author's purposes are three: first, to contribute to the scientific knowledge of the Negro in the South and to analyze his qualities and second, it is a beginning of a larger and more thorough study of the same topic. The third is to suggest means by which the heart of the problem can be reached. He seeks to avoid generalities and discusses Negro schools; church, religious, fraternal and benevolent organizations; home life; diseases; morals; offenders; the social status; the emotions and relations to conduct; and finally attempts a general estimate of the Negro. Of all the studies that have appeared on this subject, none have been so thorough and detailed as those of Dr. Odum, the first of which on The Religion of the Negro, originally appeared in the *Journal of Religious Psychology* at Clark.

Some great stories and how to tell them, by RICHARD THOMAS WYCHE. N. Y., Newson & Co., 1910. 182 p.

This book, by the best of story tellers for school children in this country, should be in the hands of all who practice or care for this art. His first chapters are on the origin of story telling; interest in it to-day; what kind of stories; retelling; the story in the Sunday School, on the platform, in the social circle; kindergarten leagues and clubs; the story of the fundamental need of the child; the psychological principles of how to tell a story; and in the last part, a series of stories told with great success by the author, viz., Beowulf, Arthur, Sir Gawain, Santa Claus, Jesus, and an interesting bibliography ends the book.

A course in the theory and practice of higher accounting, prepared for students of Eastman College, by HENRY HEITMANN. Poughkeepsie, Eastman College, 1910. 240 p.

This book is somewhat unique as there is no really serviceable work furnishing thorough and practical exercises for students in its field. Only an expert or a teacher experienced in the subject could judge of its merits in detail, but it is apparently a well devised and valuable contribution to the subject.

Shop problems in mathematics, by WILLIAM E. BRECKENRIDGE, SAMUEL F. MERSEREAU, CHARLES F. MOORE. Boston, Ginn, 1910. 280 p.

This book aims first to impart to the student information in regard to shop and shop materials, including the names of parts of machines used in wood and metal work and second, to train in the mathematical operations so useful in shop practice and science. There are over 150 illustrations and many tables and problems.

What to do at recess, by GEORGE ELLSWORTH JOHNSON. Boston' Ginn (1910). 33 p.

This writer, whose work on plays and games was a classic years ago, attempts here to give very specific instructions as to recess plays, games and dances. This volume is copiously illustrated and it should be in the hands of every teacher who knows or cares anything about how children spend their recess.

The rose garden of Omar Khayyám founded on the Persian, by EBEN FRANCIS THOMPSON. Privately printed. (Worcester), 1910. 27 p.

Eben Francis Thompson here reprints another of his versions of Omar Khayyám, who has generally been thought a materialist and atheist. Here we have, however, abundant proof of his belief in God and in a future state. Many poems praising wine are spurious, although we need not, like Nicholas, interpret them as mystical references to deity, so that he was neither a sot nor a scoffer. He probably "bragged more than he drank." Indeed, his many-sidedness has made him regarded in very different ways by different individuals. The translation is certainly very pleasing, although one who does not know the original cannot speak critically of this point.

The tragedy of Hamlet; a psychological study, by HENRY FRANK. Boston, Sherman, French & Co., 1910. 319 p.

This is a psychological discussion of the ghost, Hamlet's mental transformations, his meditations on suicide, the fate of Ophelia, was Hamlet insane, analysis and interpretation of the characters in Hamlet, the art and morale of the play, the study of Shakespere as a liberal education. There are twelve full page illustrations of different great actors who have won fame in this part, from Garrick to Forbes Robertson.

The arts course at medieval universities with special reference to grammar and rhetoric, by LOUIS JOHN PAETOW. University Studies, vol. 3, no. 7, January, 1910. Urbana-Champaign, University press. 134 p.

The chapters are, the neglect of the ancient classics at medieval universities, grammar, and the decline of the study of the languages, rhetoric and the business course.

Justice to the Jew; the story of what he has done for the world. New and revised edition. By MADISON C. PETERS. New York, Trow press, 1910. 244 p.

The chapter headings are, the Hebrew Commonwealth, a model for the American Republic; Jews not jewels in the discovery of America; the Jews in early America; the Jew as a soldier and patriot; what the Jew has done for the world; money and the Jews; Jewish traits and characteristics; justice to the Jews.

State school systems. III. Legislation and judicial decisions relating to public education, October 1, 1908 to October 1, 1909, by EDWARD C. ELLIOTT. United States Bureau of Education, Bulletin, 1910, no. 2. Washington, Government Printing Office, 1910. 305.

This is in a sense a continuation of the bulletins of 1906 and 1908, classifying and annotating the legislation of different states in matters pertaining to education.

A text-book of field zoölogy; insects and their near relatives and birds, by LOTTIE E. CRARY. Philadelphia, Blakiston, 1910. 364 p.

This work is intended for students who have but little previous knowledge of insects and animals, the latter being the more familiar ones. Field work and class work are points of view chiefly considered. It is assumed that life is the most interesting of all things and that it is a continuous fact no matter how we proceed, whether from simple to complex or from low to high or conversely. There are 117 illustrations.

Die Judenpogrome in Russland, herausgegeben im Auftrage des Zionistischen Hilfsfonds in London von der zur Erforschung der Pogrome eingesetzten Kommission. Köln, Jüdischer Verlag, 1910. 2 v.

This work is the result of a great deal of investigation and is fullest between December, 1905, and July, 1906. The Russian outrages upon the Jews are set forth in great detail and the whole policy of Russia toward this race is given a copious exposition.

Macaulay's Essay on Warren Hastings; edited with notes and an introduction by Samuel Tucker. New York, Longmans, 1910. 176 p.

Sir Walter Scott's Quentin Durward; edited with notes and an introduction by Mary E. Adams. New York, Longmans, 1910. 549 p.

Thoreau's Walden; edited with notes and an introduction by Raymond Macdonald Alden. New York, Longmans, 1910. 283 p.

Macaulay's Essay on Lord Clive; edited with notes and an introduction by Preston C. Farrar. New York, Longmans, 1910. 135 p.

Francis Parkman's The Oregon trail; edited with notes and an introduction by Ottis B. Sperlin. New York, Longmans, 1910. 363 p.

Charles Dickens' A tale of two cities; edited with notes and an introduction by Frederick William Roe. New York, Longmans, 1910. 388 p.

Elements of algebra, by ARTHUR SCHULTZE. New York, Macmillan, 1910. 309 p.

The story of Sigurd the Volsung, written in verse by WILLIAM MORRIS, with portions condensed into prose by Winifred Turner and Helen Scott. London, Longmans, 1910. 136 p.

Agriculture and its educational needs, by ANDREW SLOAN DRAPER. Syracuse, Bardeen. 92 p.

Fourth annual report of the President and of the Treasurer of the Carnegie Foundation for the Advancement of Teaching. 1909. New York, 1909. 201 p.

Angelic wisdom concerning the divine love and the divine wisdom, by EMANUEL SWEDENBORG. New York, American Swedenborg Printing and Publishing Society, 1908. 598 p.

An epitome of the diagnosis and treatment of nervous diseases including bromide therapy, by HENRY IRVING BERGER. St. Louis, Peacock Chemical Company, 1910. 42 p.

Ueber die biologische Funktion des Bewusstseins, von JULIUS PIKLER. Estratto dalla Rivista di Scienza "Scientia," vol. V, anno III (1909), N. X.—2. Bologna, Zanichelli, n. d. 13 p.

A collection of Eastern stories and legends for narration or later reading in schools; selected and adapted by Marie L. Sherlock. London, Routledge, 1910. 141 p.

Le verbcoromía (*Contribución al estudio de las facultades expresivas*), por VICTOR MERCANTE. Madrid, Jorro, 1910. 197 p.

Uber Gesetzgebung und Kindermord Wahrheiten und Träume, Nachforschungen und Bilder, von JOHANN HEINRICH PESTALOZZI, herausgegeben von Karl Wilker. Leipzig, Barth, 1910. 274 p.

Die Leitgedanken. Meiner Naturwissenschaftlichen Erkenntnislehre und ihre Aufnahme durch die Zeitgenossen, von ERNST MACH. Estratto da "Scientia," Rivista di Scienza, Vol. VIII, anno IV (1910), N. XIV.—2. Bologna, Zanichelli, n. d. 18 p.

Die taktile Schätzung von ausgefüllten und leeren Strecken, von HELEN DODD COOK. Leipzig, Engelmann, 1910. 130 p.

NOTE

PUBLIC INSTRUCTION IN NETHERLANDS-INDIA

Public instruction in Netherlands-India has been lately revived after a period of decay. Between 1873 and 1882, 249 new schools were opened, making a total of 512. In the Philippines, the Spanish system accomplished great results and prepared the way for the revolution and has made the Filipinos the leaders of the Malay races. This tendency was more or less feared by the Dutch. Moreover, it was seen that in the 1872-84 educational movement, the course was too Occidental. Hence, after considerable preparation, a scheme of native instruction was launched in 1893, with two types of training, one European and the other native, the former being open equally to children of European, native, and mixed parentage. The schools are patterned largely upon the home system in Holland, the primary and secondary together footing up two years shorter than the course in this country, but doing quite as much. In Netherlands-India, there is as yet no higher academic course. The present scheme secures civil service. In 1905 it was necessary to add Dutch to the schools to prevent overcrowding native-European type of schools. The sexes are separated; twenty pupils in a locality justifies a school; there is no religious training. Officials, instead of sending their children to the home country, even at a tender age, for their education, here send to these schools. The Dutch do not believe that the child of the official should be separated from his home. The prejudice against the Chinese is strong and felt even by the government. Dutch is the refuge from the many languages that prevail here. Before, the Dutch only educated a few natives that they could use for administrative purposes; now education is open to all. Here, as in the Philippines, the rural population must read, write and cipher, for the interests of the country. In normal schools pupils have stipends. The policy of culture has superseded that of exploitation for the native population must be protected. The Malay is often content with the semblance of power but he strongly desires to be ruled by his own people. The training here is best, perhaps, for the native judiciary, but medicine and the industrial arts are also well taught. Students who finish courses still expect the government to employ them.[1]

[1] Ninth Annual Report of the Director of Education, Philippines. Manila, 1909.

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A COMPARISON OF ELEMENTARY AND HIGH SCHOOL GRADES[1]

By WALTER R. MILES, M. A.

The marks or grades given by the elementary school, high school, college and university present many interesting problems from the point of view of educational psychology. For instance there is the question as to whether these marks are definitely related to the general mental traits, capacities and development of the individual who attains them. Then, there is the problem as to whether a given grade stands simply for a certain degree of static accomplishment or whether it is a measure of functioning capacity. We cannot speak with certainty upon these and many other points, but perhaps the most important step toward clearing them up will have been taken when a number of investigators have carefully worked over the data afforded by school marks.

For some purposes it may be satisfactory to gather the grades of a large number of pupils as they may rank in a single year, or semester. However, for more exact results it would certainly be better to gather material from the records of a smaller group whose work continues throughout a period of years.

Among the problems which may be investigated through students' records is that as to whether they maintain the same relative status or rank as they pass from one school to another. Professor W. F. Dearborn recently published a study of one phase of this problem in a monograph entitled "The Relative Standing of Pupils in the High School and in the University."[1] The primary object of our study is to make a similar investigation of the relationship between the elementary and high school grades.

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[1] Communicated from the Department of Education, The State University of Iowa, Iowa City.

The original plan was to obtain the elementary and high school records of at least 500 pupils and from these work out the correlations. Owing to the great amount of time necessary for getting together so much data and also to the differences which are sure to exist between schools, it was decided to use only that which could be obtained from the Iowa City school records.

PROBLEM

The main problem in this study has been to determine to what extent pupils in the high school maintain the relative rank which they held in the elementary or common school. In other words are the pupils who would be classed as good, average, and poor in the elementary school, good, average and poor respectively when judged on the basis of their high school work?

Closely connected with this is the similar problem relative to the specific subjects of study. What is the relationship between a pupil's elementary school ranking, for example, in arithmetic and his high school ranking in mathematics? Furthermore between what subjects are the correlations especially high?

In dealing with the above problems various other related questions, such as the factor of sex, the skipping of grades and retardation in the elementary school and the failures in subjects of study in the high school, presented themselves. These questions were investigated as far as the data afforded by this limited group would admit.

METHODS OF THE INVESTIGATION

It was necessary first to prepare a blank form suitable for purposes of gathering data.[2] These blanks were not used as a questionnaire but simply as means of helping the investigator to arrange the facts regarding each pupil in an orderly and convenient form. Not only were the marks carefully recorded in their appropriate columns but also facts regarding sickness, age and time of entrance were noted down.

In the data upon which this study is based only such records are included as show the completion on the part of the individual of at least the last four years of the elementary school and the first two years of the high school. This standard is arbitrary but owing to the natural inequalities which exist in marks it seemed well not to take account of records that were less complete. Many of the Juniors and Seniors of 1909-10 as well as a number from the graduating classes of the three or four previous years were therefore within the scope of this study. The group available, moreover, would have been much larger were it not for the fact that the records of the Iowa city schools have been preserved for only the last twelve years.

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[1] *Bulletin of the University of Wisconsin*, No. 312; High School Series, No. 6, 1909.

[2] The gathering of the material for such a study from the usual school records is a very tedious task. A loose leaf school record system would, among many other advantages, make the data of grades much more accessible to those seeking light upon certain school problems.

These schools, in marking, employ the letters "E," "G," "M," "P," and "F" which stand for the terms "Excellent," "Good," "Medium," "Poor" and "Failure." The general numerical value connected with these letters is as follows: E 95–100, G 85–95, M 75–85, P 70–75 and F —. It was necessary for purposes of averaging the marks to adopt some one numerical value for each letter. The values adopted were: E 97.5, G 90, M 80, P 72.5, and F 60. The assigning of the value 60 to F is of course very arbitrary, but it is as fair for one as another, its only effect being to push upward to some extent those who have one or more F's.

In computing the individual's average elementary school grade all the marks received in his elementary school course were taken into account; similarly, all his high school marks were averaged to obtain his high school standing.

Some may object to including music, drawing and rhetoricals in such averages, but upon inspection of the group average grades in this subjects one sees no good reason why they should be omitted. (See table No. 1.)

This table not only presents the group average grades for the various elementary and high school subjects with the average decline between the elementary and high school grades, but there is another important detail of method. Many with whom the author has talked have expressed the opinion that the marking of the first four years in the elementary school is much less discriminative than that of the last four years. If this were true it would, perhaps, be better not to include the former marks in such an investigation. All but two of the individuals in our group furnished more or less complete records for these first four years in the elementary school. From this data we find that the difference between the average for the whole elementary course and for the first four years of the course is altogether negligible; and that the marking in the elementary school seems, therefore, to be practically uniformly discriminative.

TABLE No. 1

The Group Averages

No. of Students	The Group	Average Grade
106	The Elementary School	89.15
104	First four years of Elementary School	89.16
106	The High School	82.49
106	Decline between Ele. School and High School	6.66
	Elementary School Subjects	
106	Spelling	91.33
106	Reading	90.80
106	Writing	89.47
106	Arithmetic	87.57
106	Grammar and Language	88.37
106	Geography	89.32
105	History	89.46
83	Physiology	88.26
105	Rhetoricals	91.96
101	Manual Training	87.55
106	Music	87.00
106	Drawing	89.38
	High School Subjects	
106	English	83.39
106	Mathematics	80.51
106	History	84.20
100	Foreign Language	81.53
99	Science	79.94
28	Drawing	86.92

There are so many subjects of study in the high school that for purposes of correlation certain of them were combined under comprehensive headings. (See Table No. 1.) All the marks in English Literature and English Grammar were combined to make up the average mark in English. In like manner Algebra, Geometry and Arithmetic were combined under the head of Mathematics; History and Civics under the head of History; Latin and German under the head of Foreign Language; and Physiography, Physiology, Botany, Zoölogy, Chemistry and Physics under the caption of Science.

(1) The Correlations: (a) The correlation between the average elementary and high school grades was worked out according to the Pearson formula and also by the method of quartiles. (See Table No. 2 and Figures 1 to 4.) (b) The Pearson coefficients for most of the possible correlations between specific subjects were obtained. (See Table No. 2.) Several of the same correlations between specific subjects were worked out by the quartile method. (See Figures 3 to 18.) (c) Fourteen of the group attended the State Univer-

sity of Iowa. The relative elementary school, high school and university rankings of these students are presented in Table No. 3.

(2) The Sex Factor: For the relative standing of boys and girls in the various subjects, see Table No. 4. The Figures 32 and 33 and Table No. 5 present facts regarding the distribution according to sex in the average elementary and high school ranking and in various representative subjects of study.

(3) Rates of Progress: In Figures 34 to 38 and in Table No. 6 are presented facts regarding skipping of grades and retardation in the elementary school; the grades in which this skipping and retardation most frequently occur; failures in the high school; and other minor details.

GENERAL EXPLANATION OF THE CORRELATIONS

Two methods of correlation have been used, the Pearson method and the method of quartiles. The Pearson coefficients of correlation, as Professor Thorndike says, are obtained simply, though with much arithmetical work. by the formula $r=\frac{\Sigma\chi\cdot\gamma}{\eta\sigma_1\sigma_2}$

Regarding the nature of this coefficient I take the liberty of quoting from Thorndike.[1] "It (the coefficient of correlation) has possible values from +100 per cent. through 0 to —100 per cent. A coefficient for correlation between two abilities of +100 per cent. means that the individual who is best in the group in one ability will be the best in the other; that if the individuals were ranged in order of excellence in the first ability and then in order of excellence in the second, the two rankings would be identical, that any one's station in the one will be identical with his station in the other. A coefficient of —100 per cent. would per contra mean that the best person in the one ability would be the worst in the other, that any degree of superiority in the one would go with an equal degree of inferiority in the other and *vice versa*. A coefficient of +62 per cent. would mean that (comparison being rendered fair here as always by reduction to the variabilities as units) any given station in the one trait would imply —62 hundredths of that station in the other." To illustrate let us take our own coefficients of correlation, +71, the coefficient found to exist between the average elementary and high school grades. This means, according to Thorndike's explanation, that any given station occupied by a pupil in the elementary school would imply 71 hundredths of that station in the high school distribution.

The method of quartiles, while much less exact, is useful in that it presents in a very simple way the essential relations and enables one to follow the fluctuation of the individual. Figures 1 and 2, for example, show the use of the quartile method. Figure 1 presents the ranking of the group in the elementary school course. There were five individuals who had an average elementary grade of 95, two who had an average elementary grade of 94 and so on until we come to the one who had an average grade of 80. In figuring out the averages there was usually a decimal, as, for example, number 1's real average elementary grade was 95.92. This decimal of .92 being the largest in the 95 column we place it at the top. In like manner we place each decimal relative to the other, the lowest at the bottom, the highest at the top, and so on with each column of grades.[1] Then beginning at the top of the 95 column we number down until we come to 106. This gives each one his number according to his relative rank in the group. These numbers based upon the elementary school work are retained throughout all the other figures, "1," for instance, in the other figures is thus the individual who attained 1st rank in the elementary school.

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[1] *Educational Psychology*, page 26.

Figure 1 is next divided as nearly as possible into quartiles or four equal parts. On account of the number 106, the division had to be into groups of 27, 26, 27, 26. The quartiles are numbered from the right side. Quartile No. 1 is left as nearly white as possible and contains those 27 who were ranked highest; No. 2 is hatched with lines from the upper right-hand corner to the lower left, and contains the next 26 in order of rank; No. 3 is hatched in the opposite manner from 2, and contains the next 27; and No. 4 is black and contains the poorest 26 of the group.

Figure 2 is constructed in essentially the same manner as Figure 1, only that in place of numbering the individuals according to their rank in the high school group we put down, as stated above, the number which the individual received in the elementray school ranking. The individual, for example, who is first or received 95 in the high school work was second in the elementary ranking. We therefore place the number "2" in the 95 column in Figure 2. In like manner we take account of each one, always keeping the square white, hatched or black as the case may be, in the upper figure.

We are in this way able to see how many of the numbers found in the first quartile of Figure 1 are found in the first quartile of Figure 2, or how the individuals in the first quartile of Figure 1 distribute themselves among the quartiles of Figure 2, or to put it in other words from the standpoint of

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[1] This method is followed strictly in Figure 2.

Figure 2, we are able to see in what quartiles of Figure 1 the individuals are found who make up quartile No. 1 of Figure 2.

If all the white squares were to appear in the first quartile of Figure 2 and so on until we found all the black squares of Figure 1 in the fourth quartile of Figure 2, the correlation would be perfect according to the quartile method. This, however, is seldom the case. One may look for the correlations, then, by noting the prominence of white, hatching or black in a quartile, but a more satisfactory way of exhibiting it is demonstrated in Figures 3 and 4, for example. In Figure 3, using the average elementary school grades as a basis,[1] we find that of the 27 in the first quartile there are 18 who are found in the first quartile in the average high school grades, 7 who descend to the second high school quartile, 1 to the third, and 1 to the fourth. In a similar way we show the high school distribution of the individuals who make up each of the elementary school quartiles. The white-faced numbers which form a diagonal line in Figure 3 indicate where we shoud expect to find any existing correlation. If this number is greater than any other in its line, as in Figure 3, 18 is greater than 7, 1, or 1, there is shown to be correlation, while the white-faced number 7 in Figure 3 indicates almost no correlation, for the other numbers are as large and practically represent chance distribution.

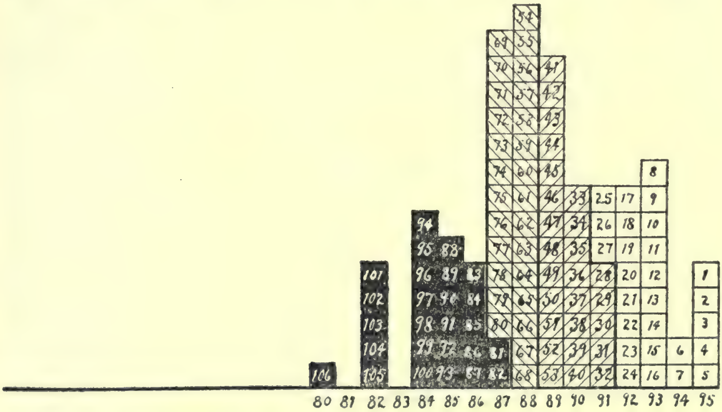

Fig. 1. The ranking of the group in their elementary school work. Quartiles numbering from right to left. The heavy lines indicate the quartile divisions.

The correlation by halves (see Figure 4) may be easily

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[1] In such figures the caption at the left-hand side always indicates the grades which are used as the basis.

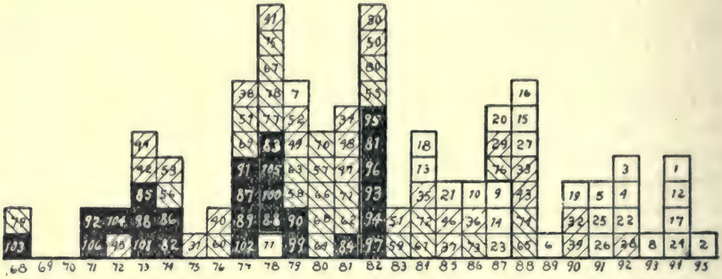

Fig. 2. The group according to the high school distribution.

worked out from Figure 3. The sum of the numbers in the four upper left-hand squares in Figure 3 is 38, of the upper right-hand squares it is 15 and so on. If the numbers in the upper left-hand square and in the lower right-hand square are larger than the others there is correlation. If the correlation were complete in Figure 3, in place of the 18 we should have 27, in place of the 7 we should have 26 and so forth, then in Figure 4 in place of each 38 would be 53.[1]

THE CORRELATIONS

(a) The correlations between the average elementary school grade and the average high school grade is, according to both the Pearson formula and the method of quartiles, shown to be quite high.[2] We may, therefore, say that in general those pupils who are the best in the elementary school are also best in the high school, and that those who are poor in their elementary school work will likewise be poor in the high school.[3] No radical change is to be noted on the part of the average pupil as he passes from one school to another. There are, of course, some notable exceptions such as Nos. 7, 11, 31, 45 and 65 who make large jumps one way or the other but these only make the general conclusion stand out the more strikingly.

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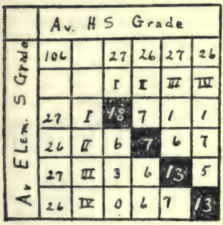
[1] It is possible to work out a coefficient of correlation from Figure 4, or the correlation by halves, as is shown by Mr. G. H. Mount of the University of Iowa in some unpublished manuscripts. The formula is $K = \frac{a-b}{n}$. To illustrate by Figure 4 $K = \frac{38-15}{53}$ or $\frac{76-30}{106} = .43$. The author knows of no relation between the coefficient thus obtained and the Pearson coefficient. It is obvious that the correlation so far as the quartile method is concerned could be perfect while the Pearson coefficient would be far from +1.00.

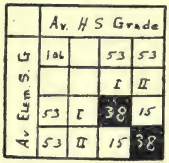
[2] Dearborn found that the Pearson coefficient of correlation between the average high school standing and the university standing was about +.80. Our coefficient of +.71 compares favorably with this.

[3] It will be noticed in Table No. 1 that between the group average elementary school grade and the group average high school grade there is a decline of 6.66 per cent. The Figures, Nos. 1 and 2, and 19 to 31, which compare elementary with high school grades, also show this decline in the lengthening of the high school curve or in other words in the scattering of the high school distribution among many more percentages. The first



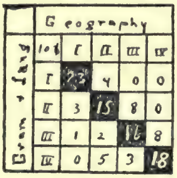
Av Elem. S Grade	Av. H S Grade					
	106		27	26	27	26
			I	II	III	III
	27	I	18	7	1	1
	26	II	6	7	6	7
	27	III	3	6	13	5
	26	IV	0	6	7	13

Fig 3



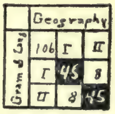
Av Elem. S. G	Av. H S Grade			
	106		53	53
			I	II
	53	I	38	15
	53	II	15	38

Fig 4



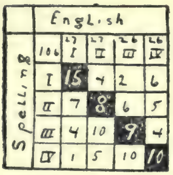
Gram & Lang	Geography				
	106	I	II	III	IV
	I	23	4	0	0
	II	3	15	8	0
	III	1	2	16	8
	IV	0	5	3	18

Fig. 5



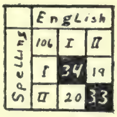
Gram & Lang	Geography		
	106	I	II
	I	45	8
	II	8	45

Fig 6



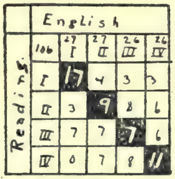
Spelling	English				
	106	27 I	27 II	26 III	26 IV
	I	15	4	2	6
	II	7	8	6	5
	III	4	10	9	4
	IV	1	5	10	10

Fig 7



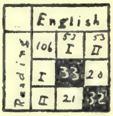
Spelling	English		
	106	I	II
	I	34	19
	II	20	33

Fig 8



Reading	English				
	106	27 I	27 II	26 III	26 IV
	I	17	4	3	3
	II	3	9	8	6
	III	7	7	7	6
	IV	0	7	8	11

Fig 9



Reading	English		
	106	53 I	53 II
	I	33	20
	II	21	32

Fig 10

quartile in Figure 2 includes the entire range of the first three quartiles of Figure 1, and quartile two in Figure 2 includes practically the range represented by quartile four in Figure 1. This means that in Figure 2, approximately but half of the total group comes within the whole range of Figure 1. If a pupil could make in the high school the same grade that he made in the elementary school his rank would, in many cases, be raised one or two quartiles. (See Figures 1 and 2, Nos. 39, 65 and 76.) This is not true, however, in the case of one that is in the first quartile in the elementary work. All that such an individual can do is, of course, to obtain a rank nearer the head of his quartile. (See Figures 1 and 2, Nos. 17 and 24.)

We must bear in mind that those individuals in the first and last quartiles can, so far as the quartile method is concerned, move in but one direction, while those in the two central divisions may move in either direction and thus effect a change which can be taken into account. Moreover the range of one of the central quartiles is usually less than that of the first or fourth quartile, so that a slight fluctuation in those sections more often means a change of quartile. These factors may account for the *slight* correlation which frequently exists in the central quartiles. (See Figures 3, 7, 9, and 11.)

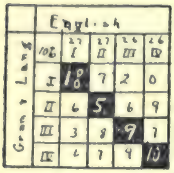


Fig 11

	English				
Gram + Lang	106	27 I	27 II	26 III	26 IV
	I	18	7	2	0
	II	6	5	6	9
	III	3	8	9	7
	IV	2	7	4	10

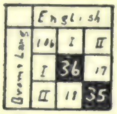


Fig 12

	English		
Gram + Lang	106	I	II
	I	36	17
	II	11	35

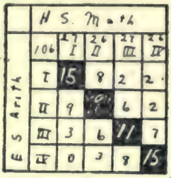


Fig 13

	H S. Math				
E S Arith	106	27 I	26 II	27 III	26 IV
	I	15	8	2	2
	II	9	9	6	2
	III	3	6	11	7
	IV	0	3	8	15

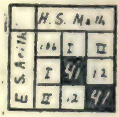


Fig 14

	H.S. Math		
E S. Arith	106	I	II
	I	41	12
	II	12	41

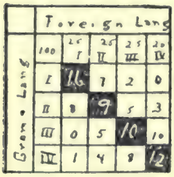


Fig 15

	Foreign Lang				
Gram + Lang	100	25 I	25 II	25 III	20 IV
	I	16	7	2	0
	II	8	9	5	3
	III	0	5	10	10
	IV	1	4	8	12

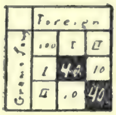


Fig 16

	Foreign		
Gram + Lang	100	I	II
	I	42	10
	II	10	40

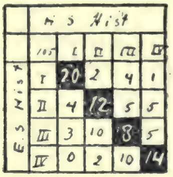


Fig 17

	H S Hist				
E. S Hist	105	I	II	III	IV
	I	20	2	4	1
	II	4	12	5	5
	III	3	10	8	5
	IV	0	2	10	14

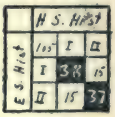


Fig 18

	H S. Hist		
E S. Hist	105	I	II
	I	38	15
	II	15	37

These figures show, 3 10 18, the results of a few representative cases of correlation by quartiles. The white numbers indicate the places where correlation occurs.

(b) The correlations between specific subjects are also quite high though usually less than that between the general averages. A careful comparison of these correlations brings out two or three important facts. It will be noticed that the coefficients of correlations for History with H. S. History and for Arithmetic with H. S. Mathematics are not so high as those for History and Geography, and Arithmetic with Grammar and Language. In other words the correlations between the same subjects in different schools are *not* markedly higher and many times are not so high as those between different subjects either in the same school or in different schools. This may argue a radical difference between the schools themselves; however, the author believes it to indicate more especially a general consistency in the rank of each pupil throughout the various subjects of study. In other words these coefficients would seem to show that if a pupil makes a good mark in one subject he will be quite apt to make good marks in all subjects, similarly the pupil who is poor in one subject will tend to be poor in all.

Upon close inspection of the coefficients of correlation it will be noted that, for example, the coefficients obtained from combinations of Spelling with other subjects are usually relatively low, while those obtained from correlations of Grammar and Language with various other subjects are quite uniformly high. The average coefficient for each subject in

Fig. 19 Reading

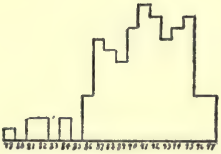


Fig. 20 Spelling

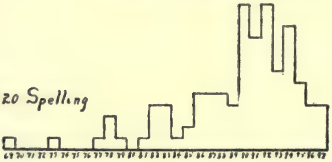


Fig. 21 Arithmetic

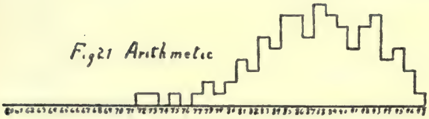


Fig. 22 H.S. History

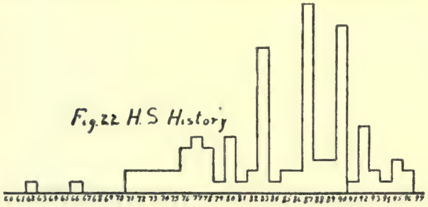


Fig. 23 English

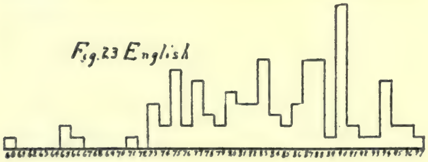


Fig. 24 Foreign Language

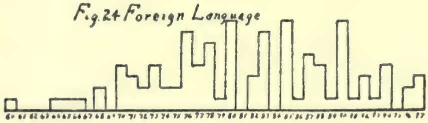


Fig. 25 Mathematics

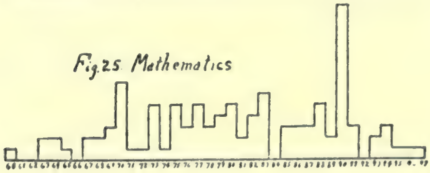


Fig. 26 Grammar & Language

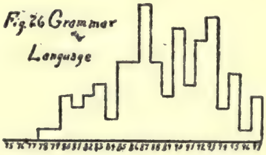


Fig. 27 Geography

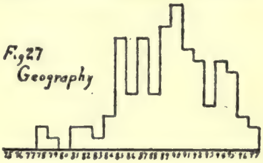


Fig. 28 Music

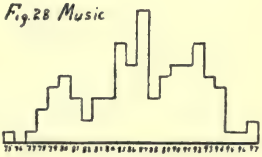


Fig. 29 Rhetoricals

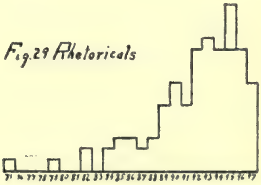


Fig. 30 Writing

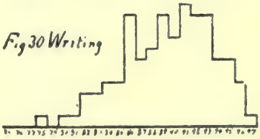
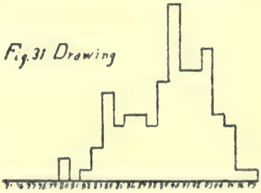


Fig. 31 Drawing



Representative curves of distribution in various subjects.

TABLE NO. 2

Correlations[1]

Subjects of Study	r
Ele. Av. Grade with High School Av. Grade	+.71
Spelling with Reading	+.54
Spelling with Arithmetic	+.51
Spelling with Grammar and Language	+.67
Spelling with Geography	+.55
Spelling with History	+.39
Spelling with English	+.35
Spelling with High School Mathematics	+.26
Spelling with High School History	+.36
Spelling with Foreign Language	+.59
Spelling with Science	+.17
Reading with Arithmetic	+.35
Reading with Grammar and Language	+.59
Reading with Geography	+.58
Reading with History	+.49
Reading with English	+.59
Reading with High School Mathematics	+.26
Reading with Foreign Language	+.30
Reading with High School History	+.43
Reading with Science	+.32
Arithmetic with Grammar and Language	+.67
Arithmetic with Geography	+.69
Arithmetic with History	+.43
Arithmetic with English	+.43
Arithmetic with High School Mathematics	+.62
Arithmetic with High School History	+.59
Grammar and Language with Geography	+.75
Grammar and Language with History	+.56
Grammar and Language with English	+.55
Grammar and Language with High School Mathematics	+.53
Grammar and Language with High School History	+.46
Grammar and Language with Foreign Language	+.61
Geography with History	+.74
History with High School History	+.61
English with Mathematics	+.61
English with High School History	+.61
English with Foreign Language	+.57
English with Science	+.66
Mathematics with High School History	+.69
Mathematics with Foreign Language	+.64
Mathematics with Science	+.58
History with Foreign Language Language	+.58
History with Science	+.64
Foreign Language with Science	+.60

combination with the others is as follows: Spelling + .439, Reading + .445, Arithmetic + .536, Grammar and Language

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[1] According to the Pearson Method.

+ .59, History + .536, Geography + .662, English + .546, Mathematics + .524, High School History + .552, Foreign Language + .556 and Science + .495. According to these figures we may say that if one wished to select the grade in a single subject which would be most representative of the individual's general school standing we should take the grade in Geography. The grade which would be least representative of the individual's general standing is the one in Spelling. To make such subjects as Reading or Arithmetic the basis of promotion from grade to grade would thus be manifestly unfair.

Another point to be noted is the difference between the coefficients of correlation where (1) an elementary subject has been correlated with a high school subject and where (2) an elementary subject has been correlated with an elementary subject or a high school subject with a high school subject. There are twenty-five cases of the latter sort. The average of these twenty-five coefficients is + .588. There are eighteen cases where correlations have been made between some elementary subject and some high school subject. The average of these coefficients is + .446. Fifteen coefficients were obtained by correlating elementary school subjects. Their average coefficient is + .567. Ten correlations were made between high school subjects with an average coefficient of + .618. These figures would seem to indicate a difference between schools, as well as showing that correlation is higher between high school subjects than it is between elementary school subjects.

(c) Fourteen from our group of 106 took work in the State University of Iowa after graduating from high school. The average elementary, high school and university grades of these individuals are presented in Table 3. The most striking thing about this table is that the pupils who rank first and last in the elementary and high school standings, also rank first and last respectively in university standing, so far as this group is concerned. There is also marked correlation in case of numbers 4 and 12. Below the table the correlation is indicated by the method of halves, the first seven according to the elementary school ranking, contain six of the first seven according to the university ranking. The high school ranks are seen to correlate with those of the university better than do those of the elementary school.

THE SEX FACTOR

In the gathering of data there was no effort made to obtain records of an equal number of boys and girls. But after the resources were exhausted it was discovered that we had just

TABLE NO. 3

Ranking of Fourteen of the Students who attended the State University of Iowa

Ele. S. Ranking	Ele. S. Number[1]	H. S. Ranking	H. S. Number[1]	Univ. Ranking	Ele.S. Av. Grade	H. S. Av. Grade	Univ. Av. Grade
1	12	1	3	1	94	95	89
2	18	7	38	9	93	85	79
3	21	6	34	12	92	86	73
4	25	4	12	5	92	92	85
5	26	3	11	4	92	92	87
6	28	2	9	2	92	92	88
7	47	10	59	11	90	81	74
8	65	55	23	2	88	88	88
9	77	11	77	5	87	79	85
10	80	8	44	5	87	83	85
11	88	10	80	10	86	78	75
12	91	13	86	13	85	77	69
13	93	9	49	5	85	82	85
14	104	14	101	14	82	73	63

	H. S. Rank		Univ. Rank	
E. S. Rank	6	1	4	3
	1	6	3	4

	Univ. Rank	
H.S. Rank	5	2
	2	5

53 boys and 53 girls in the group. This makes it convenient for comparing the ranking of each sex.

In Figures 32 and 33 the black squares represent boys while the white represents girls. These figures show the distribution according to sex in the elementary and high schools respectively. An inspection of the topmost portion of Table No. 5 will make explicit what is shown in the two previous figures. It will be noted that the first 27 of the elementary school group is composed of 22 girls and 5 boys, the next 26 of 15 girls and 11 boys, the next 27 of 10 girls and 17 boys, while the last 26 contains 6 girls and 20 boys. In the elementary school the girls are decidedly ahead of the boys and, while the difference in the high school is not so great, yet even here the girls are in the lead.

Not only do the girls lead the boys, when we figure on the basis of the general average ranking, but this is also the case in most, if not all, of the specific subjects of study. (See

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[1] These numbers indicate rankings in the larger group of 106.

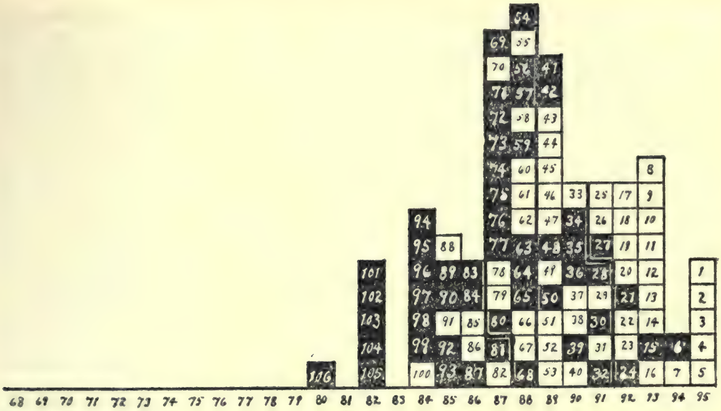

Fig. 32. The distribution of boys and girls in the average elementary school rank. (Black represents boys.)

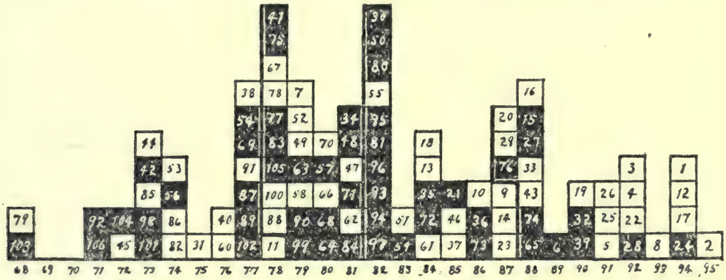

Fig. 33. The distribution of boys and girls in the average high school ranking. (Black represents boys.)

TABLE NO. 4

Group Averages for Boys and Girls

Subjects of Study	Grade Boys	 Girls
Elementary School	87.64	90.66
High School	81.47	83.51
Spelling	88.00	84.30
Reading	89.40	92.00
Arithmetic	87.60	87.60
Grammar and Language	87.00	90.20
Geography	88.80	89.80
History	89.40	89.50
Manual Training	84.60	90.80
English	81.20	85.60
Mathematics	79.70	81.30
High School History	84.30	84.10
Foreign Language	80.00	83.10
Science	79.00	81.00

106 Students	Elem School				106 Students	High School			
Quartiles	I	II	III	IV	Quartiles	I	II	III	IV
Girls	22	15	10	6	Girls	17	11	12	13
Boys	5	11	17	20	Boys	10	15	15	13
106 Students	Spelling				106 Students	Reading			
Quartiles	I	II	III	IV	Quartiles	I	II	III	IV
Girls	22	13	10	8	Girls	22	13	10	8
Boys	5	13	17	18	Boys	5	13	17	18
106 Students	Arithmetic				106 Students	Gram of Lang.			
Quartiles	I	II	III	IV	Quartiles	I	II	III	IV
Girls	15	13	12	13	Girls	21	17	8	7
Boys	12	13	15	13	Boys	6	9	19	19
106 Students	English				106 Students	H. S. Math.			
Quartiles	I	II	III	IV	Quartiles	I	II	III	IV
Girls	20	14	6	12	Girls	16	14	9	14
Boys	7	12	20	14	Boys	11	12	18	12
105 Students	H. S. Hist				100 Students	Foreign Lang.			
Quartiles	I	II	III	IV	Quartiles	I	II	III	IV
Girls	17	8	12	16	Girls	16	13	14	8
Boys	10	18	15	9	Boys	9	12	11	17
101 Students	Man Train				99 Students	Science			
Quartiles	I	II	III	IV	Quartiles	I	II	III	IV
Girls	24	16	6	2	Girls	17	12	9	13
Boys	2	9	19	23	Boys	8	13	15	12

Table No. 5. Indicating the relative number of boys and girls in the various quartiles in the elementary and high school rankings and in representative subjects.

Tables Nos. 4 and 5.) The distribution in the case of Arithmetic is about as even and as nearly in favor of the boys as anywhere.

The Manual Training grades were something of a surprise from the standpoint of the sex factor. Granting that the division lines for the quartiles, in this subject, were arbitrary, yet in the best 43 of this Manual Training group there are only 6 boys. The total number of boys (53) took Manual Training while only 48 of the girls had grades in this subject. A thing that will be noticed in several subjects is that the girls have a majority in the first and fourth quartiles while the boys predominate in the two middle quartiles. This may account for the fact that in one or two instances the boys attained a higher average grade than the girls. (See Table No. 4.) It may be noted from this table that in passing from the elementary school to the high school the boys came nearer than the girls to holding their own in average grade.

Why the girls should thus out-class the boys is a hard question to answer. Possibly it is because the girls are more fully developed than the boys or are more conscientious about following the directions of instructors. Then again it may be that the schools do not vitally appeal to the real abilities of the boys.

RATES OF PROGRESS

Out of the group of 106 individuals the records indicate that 52, during the elementary school course, skipped a half-year or more of the work. (See Figure 34.) The black squares represent those who thus skipped grades. In no case was skipping counted if it occurred in the first grade, furthermore if, for example, a pupil skipped a half-grade and then later in his course repeated as much, which often happened, neither the skipping nor the repeating was counted.

Altogether there were 102 half-grades skipped in this manner. Of this number 68 cases occur between B Second and B Fifth, while there are 34 cases between A Fifth and A Eighth. (See Figure 38.) The skipping distributed according to the final average marks of those who did it is presented in Figure 37. (The hatching indicates the amount of retardation.) When we take into consideration also the fact that on the average the pupils who skip grades are eight months younger upon graduation than their fellows it is evident that they have in this way really gained some time.

These results are quite the contrary of those attained by Ayres.[1] I have taken the liberty to reproduce in Figure 39 a diagram by which Ayres contrasts the number of pupils making rapid progress with those making slow progress. Judging from the results shown in Ayres's figure it is difficult to account for the rapid progress of nearly one-half of the group which we have studied. To some extent ours is a selected group, to what extent one cannot tell.[2]

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[1] *Cf. "Laggards in Our Schools."* Chap. 7.

[2] The teachers in the Iowa City Schools were much surprised to learn of the amount of skipping but offered no explanation.

There were 28 of the boys and 24 of the girls who made rapid progress in the elementary school, while 4 of each sex were retarded in these grades. The boys skipped 48 half-grades, the majority of which were between B Second and B Fifth, while of the 54 half-grades omitted by the girls almost half were between A Fifth and A Eighth.

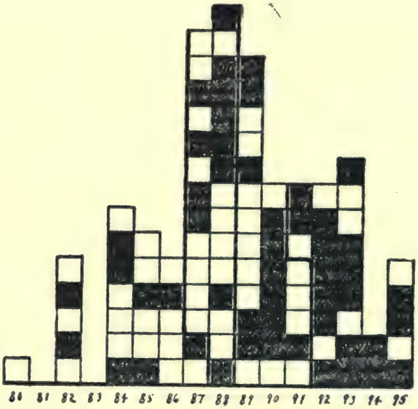


Fig. No. 34. The distribution of those who skipped grades in the elementary school indicated by the black.

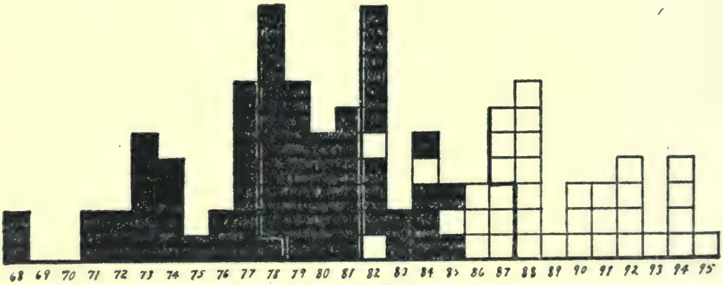


Fig. No. 35. The distribution of those students who had one or more "Fs" in the course of their high school work indicated by the black.

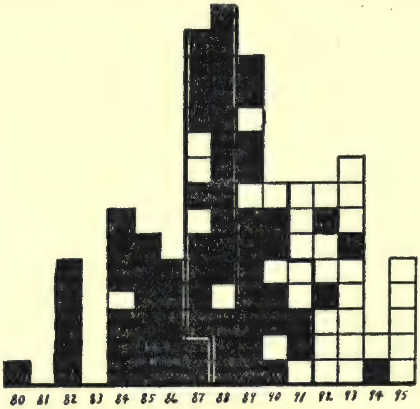


Fig. No. 36. The distribution in the elementary school ranking of those who received one or more "Fs" in their high school work indicated by the black.

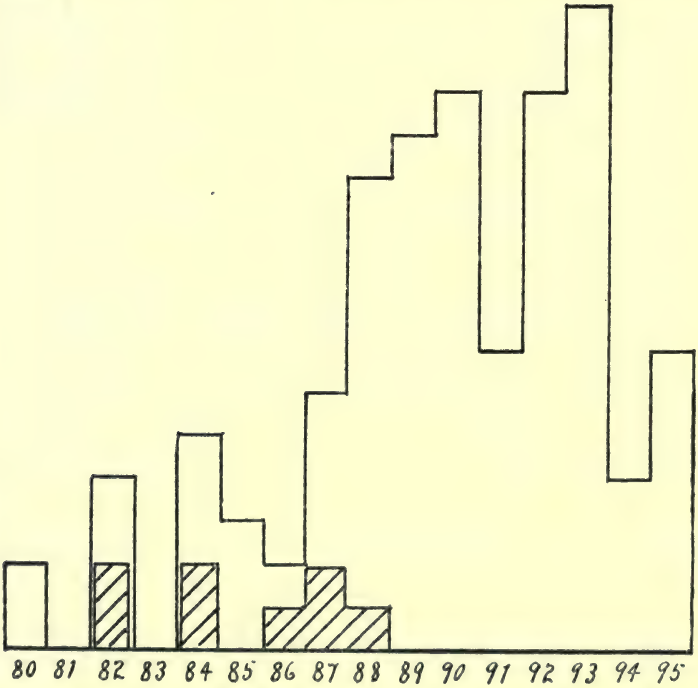


Fig. No. 37. The distribution of the 102 half-grades skipped, according to the final average mark of those who did the skipping.

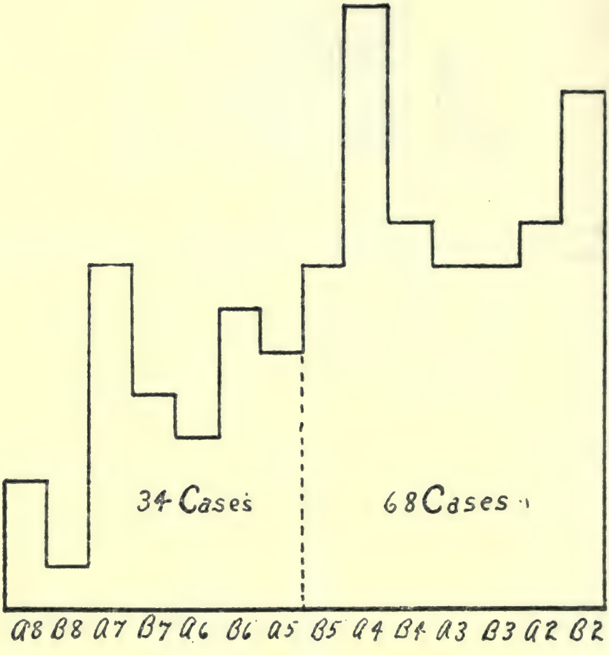
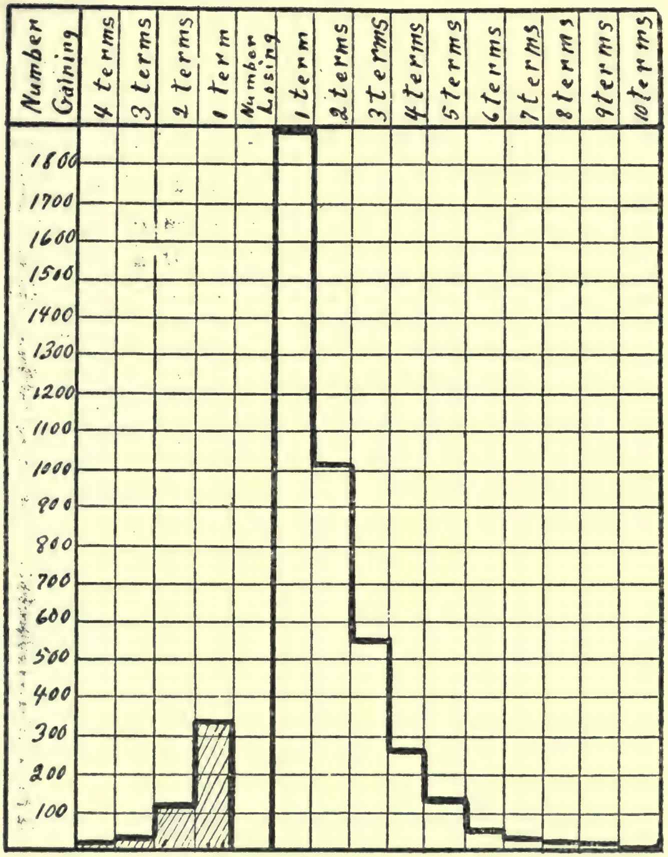


Fig. No. 38. The grades in which the skipping occurred.



Rates of Progress According to Ayres

Fig. 39. Borrowed from "Laggards in Our Schools," Ayres. The hatching indicates those making rapid progress.

The failures in the high school amount to 300 for the whole group. By failure here we mean unsatisfactory work in some subject for a semester. Many of the students had one or two F's while No. 106 had seventeen to his discredit. There were 170 failures among 39 boys while 30 girls made the remaining 130 failures. In Figure 35 the black squares indicate the high school distribution of those who had failures. Figure 36 shows the distribution of these same individuals in the elementary school. The number of failures occurring in each of the high school subjects is shown in Table No. 6. There is thus shown to be a marked correlation between one's position in the elementary school group, and the probability of his making "F's" during his high school course.

Subjects	Total number of marks in subject	Total number of failures in subject	Per cent. of marks that were failures
English	640	60	9
Mathematics	573	111	19
History	388	26	7
Foreign Language	496	69	14
Science	267	34	13

Table No. 6 indicates the percentage of marks that were failures in the various high school subjects.

SUMMARY

Our study would, therefore, seem to point to the following conclusions: the great majority of the students who take the high school course have made rapid or at least normal progress in the elementary grades; most of the high school students fail in some of their work; the schools seem to be fitted better for girls than for boys; the individual student in passing from the elementary school to the high school seldom changes radically his ranking and the rank which he receives in any one subject will represent nearly the rank which he receives in all subjects.

IMITATIVE WRITING IN THE HIGH SCHOOL

By Sarah E. Simons

During the past two school years an experiment was tried in the English department of the Washington high schools, the interesting results of which I offer as the apology for this article. It was an attempt to aid the teaching of English composition by calling into play the innate tendency of the pupil to imitate.

Until recently the principle of imitation has been neglected by professed psychologists and educators. But since M. Tarde's masterly formulation of the laws of imitation, attention has been drawn more and more to its study. We must all acknowledge imitation to be a leading factor in the life of individuals and of society. Tarde makes imitation the very essence of social life; McDougall makes it the essence of individual life. Unconscious imitation begins soon after birth, conscious imitation not long after. The child at work or play is always copying a model. Conscious, rational imitation is a necessary act of all learning; it is the preliminary step to invention or creation. And it is this conscious, deliberate, rational imitation that is of greatest educative value.

Technic in music and the plastic arts is acquired through modeling after the masters. Why should not this method be used by teachers of English? To those who object to the use of imitation in English composition as deadly to originality of expression we would say, "Man cannot create something out of nothing, or form without a model." Moreover imitation is a *means*, not an *end*. Our end is their end; power of self-expression not servile reproduction. We maintain that imitation of a master is a means of gaining power of self-expression not of inducing self-repression. To imitate is not the way to write, but it is one of the ways to learn to write. "To reproduce in your own words" is to develop little linguistic power, but to produce "after the master" is to cause assimilation of the new so that it becomes part of the pupil's linguistic hoard. Imitation is a thought-compelling, dynamic exercise. It is a preliminary step to creation. Mr. Jaspar Newton Deahl, in his interesting monograph on *Imitation in Education*, makes a plea for the use of imitation by teachers as a valuable means of securing mind growth, and Mr. Percival

Chubb, in his illuminating book on *The Teaching of English*, vigorously urges the use of imitation in the teaching of English composition.

From our experience in the use of conscious, deliberate, rational imitation of literary masterpieces as one method of teaching composition we may summarize the benefits to the pupil somewhat roughly as follows:

1. It gives new zest to the theme work; the attack of the pupil becomes vigorous; the very effort necessary to attain the definite end counts for much in forming the habit of working *actively*, in shaking off the indifference the pupil so often brings to his task.
2. The pupil must work with his eye on the object. Necessarily this helps to form habits of close observation, to develop accuracy of expression, to enrich the vocabulary, to rouse a craftsman-like pleasure in the work itself.
3. It stimulates and strengthens the imagination.
4. It aids interpretation and appreciation of the masterpiece. The success of the pupil's imitation is often the measure of his appreciation.
5. It gratifies the pupil's instinct for construction. He looks upon his product as an *achievement*. Ambition is roused, pride stimulated when he feels he can *do* something.
6. It promotes rather than retards *individuality*. The good or even indifferent imitation is to the student at this particular stage, a *creation*. This becomes an aid to *invention*, for power to copy more than one style, will necessarily result in power to combine and assimilate, and ultimately in power to invent a style of one's own.

From the nature of the experiment, the rest of this paper will be made up largely of illustrative material drawn from the pupil's own efforts. The illustrations are submitted as *ends* in themselves, bits of composition work that demonstrate the power of the pupil to copy a model. The conclusions drawn above as to imitation as a *means* of developing literary appreciation and facility of expression must, I fear, be taken for granted by the reader as I have given no comparative tests to classes doing imitative work and those not doing it. Every paper quoted is first draft, untouched by the teacher except in case of misspelled words. I shall now briefly sketch the plan of work and quote here and there typical papers from each year.

First Year

In the first year classes while studying narration, the teacher read aloud a few of Æsop's *Fables*. A half-dozen maxims were then suggested to the pupils who were asked to think out and write in class an original fable illustrating the motto. The following is typical.

HASTE IS WASTE

One day, a motherless sparrow saw from his cradle a great owl soaring far overhead. The swiftness of the bird's flying, compared with his hopping, was so great that he decided that he too would begin to fly the very next day. Although warned many times, by his older brothers, to wait until his wings grew larger and stronger, he ventured from his nest, which fortunately was in the lower part of the tree. His first sensation was one of delight, but, when he felt himself going down, he quickly changed his mind, about the extreme pleasure of flying. Serious bruises resulted from his fall, and when weeks after, his other brothers and sisters had learned to fly, he keenly felt the time wasted by his haste.

A little later the teacher read aloud a number of Richard Harding Davis's *Van Bibber* stories. These were discussed and compared with other short stories read, for the purpose of selecting the peculiar features of the Van Bibber story. Then original Van Bibber stories were asked for. The response was surprising. Each member of the section wrote a Van Bibber story and in only one case was all flavor of the original lacking. Some five or six were really clever imitations. The length of these papers prevents my quoting more than one.

MR. VAN BIBBER'S QUEST

Mr. Van Bibber was in Washington. He was there on an unusual errand at that.

The evening before as he was taking a walk down Madison Avenue, he happened to meet a friend who had just been to Washington on a business trip. He told Mr. Van Bibber that he had seen his ex-valet, Walters, there on the street peddling shoe-strings, apparently in great destitution. He found out also, that the peddler lived in a certain one of the large tenements in a poor part of the city.

Now Van Bibber had often wondered what had become of Walters. His present valet was all right in his way, but he could not compare with Walters. So he decided to at once go to Washington and look up his man.

Accordingly, the next morning found him breakfasting in the capital city.

Immediately after breakfast, he commenced his search. For practically the whole day he roamed through the busiest portions of the city, taking especial note of peddlers of all kinds. But he saw nothing of Walters.

Van Bibber was thoroughly tired, so he decided to return to his hotel and rest until the next day, when he intended to go to the tenement.

Early on the following morning, he started out in the direction of Washington's poorest tenement district. After leaving the street car, he walked on down a narrow, filthy street until he came to a large building, covering nearly a block. He entered and found himself in a dark, low, foul-smelling passage-way, lined on either side with narrow doors.

Van Bibber was plainly bewildered. He had never imagined that such a place as this existed. He had heard, of course, stories of the East Side in New York, but had thought that such stories were all gross exaggerations. Now he had come face to face with such a life and he was staggered for a moment.

"Well," thought Van Bibber, "even if I don't find Walters, I will at least learn something new. I have visited Washington many times before, but never under such circumstances as these.

He knocked timidly at the first door on his right. After several minutes it was slowly opened by an old woman, who stared at him with large, curious eyes.

"Have you ever heard of a man named Walters living in this house?" he asked.

"Why, yes," answered the woman. "He lived here once. He only stayed a little while, for he said that such a place as this is, the likes of him was n't used to."

"Do you know where he moved to?" was Van Bibber's next question.

"I don't know for sure," she said, "but I think he went to Potomac Alley, which, if I do say so, is a good respectable place. It's a good ways from here though," she added, "and farther towards town."

"Did you know anything about him or his circumstances?" asked Van Bibber again.

"Not much," said the woman. Then in a more confidential tone she went on. "He was a strange man and kept much to himself. But one could tell he was above all this."

After having received such information as the woman was able to give, as to how to find Potomac Alley, Van Bibber thanked her for all of her information and departed.

It was now nearly noon and the streets were filled with people, hurrying to and from their midday meal. Van Bibber began to feel hungry also.

"I believe I will go back and get my lunch," said he to himself. "Then I will feel more like going to see Potomac Alley, and interviewing its 'highly respectable' (?) residents."

After regaling himself with a hearty lunch, Mr. Van Bibber set out, and easily found the alley. It was only one block long and one side of that was only the back of a large hotel. He knocked at the door of the best looking house in the row. The woman who answered the door had heard nothing of anyone named Walters, but she thought maybe her next door neighbor had, as she kept roomers.

Van Bibber stepped up to the door of the next house and knocked. In answer to his question the woman said that Walters had been rooming with her for several months, but that he had paid her up and left that morning.

Upon hearing this, Van Bibber began to fear that he had lost his man after all. He hurried back down town and began to walk through the principal streets. Suddenly he tripped and would have falled if some one's outstretched hand had not caught him. When he turned to thank the owner of the hand, he saw that it was only a poor shoe-string man. As Van Bibber's thoughts were still on Walters, he scarcely noticed the man, but only slipped a quarter into his hand and walked on.

He had not gone very far, however, before he began to realize that there was something strangely familiar in the peddler's outline. Then it suddenly flashed across him that he might be the long-looked-for Walters.

Van Bibber quickly retraced his steps and reached the spot just in time to see the peddler, who had disposed of all his shoe-strings, hurrying around the corner. He followed as quickly as possible and managed always to keep him in sight. At last the man turned into a quiet street and stopped to read a sign.

Van Bibber was quite sure, now, that this man was Walters, so he hastened forward and touched him on the shoulder.

"Why, how do you do, Walters?" he said, speaking as though very much surprised to see him. Walters turned around suddenly and when he recognized Van Bibber he said joyfully, "I certainly am glad to meet you, sir.

I often think of you, for an easier, kinder master, I never had, I am sure, sir."

"You are the very one I want to see, too," said Van Bibber. "I have never yet quite understood the circumstances under which you left me, and I am very curious on the subject."

"I hated to leave such a good place, sir," said he flushing, "but you see it was this way. After behaving as I did, I knew that I could not remain in your service, sir, and rather than be discharged, I decided to leave as I did."

"But," he continued, "I have had bad luck, sir, from first to last. Having no references I could not get another place as valet, so I went down and down until at last I was obliged to sell shoe-strings for a living. I am going to leave Washington to-morrow, sir, and try my luck out West."

"You are going to do no such thing," said Mr. Van Bibber. "You are coming back to me. I am not nearly so comfortable with my present man as I was with you. You are coming, are you not?"

"O, if I only could," said Walters. "I will promise you that hereafter I will always behave in such a manner as becomes my station. I was very proud, sir, but I have been thoroughly humbled."

Mr. Van Bibber and Walters, his valet, returned to New York that night. The next day one of Mr. Van Bibber's friends, happening to drop into his apartments, found the happy Walters, busily at work brushing his master's clothes.

After reading *Sir Patrick Spens*, and discussing the ballad idea and the ballad form, original ballads, such as the following were written by the class. The subject of this was evidently suggested to the pupil by the morning exercises in the class room, for just at this time the teacher was reading to the class the story of Esther.

BALLAD OF ESTHER

The wise men sent for maidens fair
   That one the king might love.
The king, he thought the maid Esther
   As fair as from above.

And she gained grace within his sight—
   The king proclaimed her queen;
And she was loved by all his house,
   His country too, I ween.

Now in that land was passed a law
   That all the Jews must die.
Queen Esther heard her kinsmen's fate:
   Then to the king drew nigh.

The king held forth his golden wand,
   And in a gentle tone
Said she might have whate'er was his
   Even to half his throne.

The king, he heard her gentle wish.
   And granted her her plea:
"My lord I would you'd dine right soon
   With Haman and with me."

Then Haman boasted to his friends
  That with the king he'd dine.
But long before the feast was o'er
  He had no taste for wine.

The king, he harked to Esther fair;
  Hanged Haman on a tree.
And all throughout that royal land
  The Jews were let go free.

Later in the year, while reading Longfellow's *Tales of a Wayside Inn*, imitations of parts of the Olaf Saga were asked for. The pupils responded with alacrity. With few exceptions all were eager to try and great appreciation of their classmates' efforts was shown when the imitations were read aloud. Nothing remarkable was produced but interest was aroused in the theme work by this exercise. I select at random. This was home work.

CAPTURE OF SIGFREDA

Loud the wind blew and the waters
In confusion tossed the war boat,
As the mighty Viking Goraf
Led his host against King Olaf.
  Surge ye waters, ho!

As the "Tiger" neared the Drontheim,
Loud and fearful wailings heard they—
Of a maiden, crying, calling,
And beseeching help from Odin.
    Why dost thou weep so?

Goraf landed, and the "Tiger"
Crouched behind a clump of bushes,
Hidden from the eager Berserks,
Watched the fearless Goraf's venture—
    Saw him to the rescue go.

"'T is King Olaf's lovely daughter!"
Muttered Goraf, in amazement,
"Should she not be back in Denmark?
Praising loud the Galilean?"
    Wild the sea blasts blow.

Then aboard his ship he bore her,
Tho' she never ceased her wailings;
All the Vikings crowded 'round her—
Placed her in the seat of honor—
    In the ships great bow.

War was now completely ended,
All their bitter feelings left them,
For the capture of this maiden
Meant a victory for Odin.
    So they homeward go.

THOR'S SONG OF VICTORY

I am still mighty
  Monarch of all domain,
O'er the whole world,
  Forever will I reign.

I am the victor
  O'er Olaf, the king,
Sounds from my hammer
  Forever shall ring.

My chariot wheels roll,
  Causing the thunder,
From this result, men
  Tremble and wonder.

Still does my red beard
  Stream through the skies,
Men 'gainst my power
  Never shall rise.

My strength is triumphant,
  My rule shall extend
Over mountain and valley,
  O'er moorland and fen.

A FUNERAL DIRGE FOR KING OLAF

Olaf the King is dead!
Slain by the Danes and the Swedes,
Slain on his fair ship's prow,
Battling for his land and religion,
Battling for all he loved.

Now indeed is Norroway bereaved.
Shorn of her staff and her strength,
Shorn of her victorious leader,
Her mighty all-conquering hero,
Her glorious, Christian ruler!

Oh! sadly is Norroway stricken
Mourn now must Astrid, the Holy,
Mourn must his slaves and adorers,
Wails shall arise from his priests,
Wails, and prayers for his soul.

Bowed with grief is all Norroway,
Gone is her sovereign-protector,
Gone from the land he converted.
Comes now his foeman and conqueror,
Comes now the people's oppressor.

Torn to her foundations is Norroway,
The waves sound a dirge on her shores,
The waves on whose bosom he died
Solemnly mourn through their depths,
Solemnly mourn on forever;
    For Olaf is gone to his rest.

SWANHILD

Fair was Swanhild as the lilies,
   Like the sun's rays were her tresses,
And the very gods in heaven,
   Lavished on her their caresses.

High upon a frowning cliff
   Gleamed the whiteness of the tower
Wherein dwelt the lovely Swanhild,
   Of all Angvalds-ness, the flower.

'Neath the cliff, at ebb of ocean,
   On a narrow strip of sand,
Strolled each day the lovely maiden,
   Hearkening to the sea song, grand.

Often gazed she o'er the billows,
   Striving with her eager eyes
To discern some far off vessel,
   Dark against the distant skies.

Ever eager, ever watchful,
   Waited she for the return
Of her father, Ulf, the Black Wolf,
From his raid on Kernbehöln.

For she wished to gain his favor
   For her lover, Kolbiorn,
Marshal of the great King Olaf,
   And her father's enemy, sworn.

Kolbiorn, forseeing trouble,
   Had to Olaf gone for aid,
Asking of him men and vessels,
   Lest some harm befall the maid.

Swanhild, fearless, waited on,
   Sure her father's love for her
Would outweigh all petty hatred
   That he might her lover bear.

Soon her patience was rewarded,
   And on one eventful day,
Ulf, the Wolf, came sailing homeward
   Victor, from a fearful fray.

On the sand the women waited,
   Singing, dancing, in rejoicing;
On the ships men's voices lifted,
   Joined them, the glad chorus voicing.

Came the men from off the vessels
   In small skiffs with single oars,
Landing safe, victoriously,
   Once more on their native shores.

Up the narrow, rock-hewn stairway
   Tramped the men-at-arms, all singing,

Till the air around, with music
  And the clang of steel was ringing.

In the great hall there was feasting,
  Merry music and much laughter,
Till the ghostly dawn came creeping,
  Lighting up each beam and rafter.

Swanhild rose and asked her father
  For consent to marry Kolbiorn
Marshal of the great king Olaf,
  And her father's enemy, sworn.

"Never, by my sword," then cried he,
  "By the black wolf and the scarlet
Of my banner, shall my daughter
  Plight her troth with Christian varlet."

Swanhild, startled, flushed, and angry,
  Rose and answered in defiance,
That she'd marry him she favored,
  Tho' the gods forbade th' alliance.

Ulf, in fury, bade them bind her
  To the tiller of a skiff,
Then out upon the wild sea, cast they
  Swanhild, helpless and adrift.

Rose a tempest on the ocean,
  Roared the waters, hurled the sleet
Over Swanhild, and the north wind
  Cased her in an icy sheet.

Kolbiorn, next morn, returning
  With armed men and many ships,
Found the maiden, frozen, lifeless,
  With blank eyes and bloodless lips.

Then in great wrath, vengeance sought he,
  Razed Ulf's castle to the ground,
Left not one stone on another,
  And Ulf's men as captives bound.

Ulf, he slew in single combat,
  Ravaged he each wood and field;
Thus his vengeance was completed,
  But his heart was never healed.

The second semester of this year the pupils studied Palmer's translation of the *Odyssey*. Keen appreciation of this masterpiece was shown through the imitative work. Often during the reading Homeric figures such as the following were written in class, without preparation, as a fifteen-minute exercise.

As the leafy branch of a tree waves to and fro in the breeze, now bending to one side, now to another; so did Odysseus' ship, moved by the Cyclops' mighty boulder, toss back and forth, in the water.

As the bright sun sinks from the zenith, gradually growing lower and dimmer until it disappears below the horizon; as the bright flowers close their weary eyes at even'tide and heed not the call of the wind; even so slept the heart of Penelope after Odysseus left, nor did it heed the voices of the suitors.

And, as a pack of dogs, eager for the chase, when let loose from the restraining leash, do howl and bark as they hunt down their prey, so did the winds when let loose from the bag by the sailors of Odysseus howl and rage around the ship, making it redouble on its tracks and recross the sea to the island of Æolus.

At the close of the study of the *Odyssey* the pupils were told to write an original incident, an imaginary adventure of one of the characters, or a classic myth in the style of Homer. Great interest was shown in the exercise. Every pupil produced something worth while and in many cases the results were far from indifferent. The following are illustrative papers.

THE DEATH OF ODYSSEUS

Now that long-wandering Odysseus arrived in his native land, he planned the destruction of the suitors, he and his son and the faithful swineherd Eumæus. Upon the eve of the struggle, as the sun sank into the ocean's stream, Telemachus, the son of Odysseus, mingled with the substance-wasting suitors. Out of the hall he moved all the brazen spears and shields, saying he would clean them. The wine-drinking suitors offered no words of opposition, and straightway his orders were carried out. And now he returned to his father, and they, offering a prayer to Athene, retired upon their beds, and sleep closed their eyes.

When the dawn appeared and the sun drove his chariot up the sky, Odysseus rose from bed, he and his son and the faithful swineherd Eumæus. They gathered together all the faithful servants, and armed them with weapons. And now Odysseus bound under his rags his shining sword of steel, and took his hard-bending bow and quiver full of arrows. And after all was ready they journeyed to the palace, vowing deeds of vengeance. The feast-loving suitors were eating the morning meal. Eurymachus marked the bow in the hands of Odyessus and said: "Beggar, vile man and low, how came you by that weapon? Did you steal it from some house where you begged for bread? You have not strength to string it, and therefore must use it for a staff to lean upon." The wrath of Odysseus rose at the taunt; and standing in the doorway he threw off his rags, appearing in all his kingly strength. He strung the bow, and fitting an arrow to the string let fly at the suitor. As a thunderbolt of god-governing Zeus strikes a wind-driven ship, so did the metal shaft strike Eurymachus. Upon the floor he fell, his blood staining the pavement. And now upon the suitors confusion fell, and thickly among them the arrows flew. The shafts soon were spent and Odysseus and his followers fell to battling with their swords. But the suitors by their great numbers drove them steadily into the walled court, surrounding them on all sides. Great were the numbers that fell by the sword of Odysseus. But now he only remained, with his son and Eumæus. Then fell Eumæus, pierced by a brazen spear. And now Telemachus fell upon the pavement, slippery with blood. From behind he was smitten, his soul passing to the land of the dead. The wrath of Odysseus rose at the sight of his son upon the ground. Quickly his sword flew. Among the suitors was a young Achean, famed for skill with the bow, who drew a brazen arrow to the head and let fly. It pierced the sorrow-worn heart of Odysseus and thus ended the struggle.

And now as the sun sank into the ocean's stream, the triumphant suitors held a glorious feast, while in her chamber with her maids wept Penelope, for on her the gods had sent a last great sorrow.

ARIADNE IN THE HALLS OF HADES

In the midst of the dark gloom which forever hangs over the land of Hades, stood mighty Odysseus, holding his shining sword over the dark blood and the open pit.

And now came Ariadne, gentle and beautiful, daughter of powerful Minos, and beloved of Theseus; and when she had drunk of the dark blood, god-like Odysseus straightway questioned her, begging her to tell him her pitiful story. Then, letting the big tears fall, thus spoke beautiful Ariadne:

''Noblest of men, hardy Odysseus, mine is but a sorrowful tale. After I had fore-warned brave Theseus and had thus saved him from the minotaur, we then embarked in curved ships for fair Athens, the home of Theseus, where I was to be his bride. After many pleasant days upon the salt-strewn acres of the sea, we reached an island, sea-girt Dia, where Theseus left me alone and unprotected, sailing away to Athens. As a child plucks a bright, sweet flower which he loves and cherishes for a short time, then casts it from him carelessly, to let its loveliness wither on the barren ground; so Theseus ruthlessly abandoned me on that solitary island. Finally the fair-haired huntress, Artemis, slew me with her gentle arrow, taking pity on my distress, and from thence I descended into the dark halls of Hades."

So saying gentle Ariadne bowed her head and passed on silently, like a shadow, making place for the other spirits, eager to drink the dark blood under the drawn sword of god-like Odysseus.

THE LAND OF THE LOTUS EATERS

Long-haired, royal Odysseus had drifted for ten days on the wine dark sea, when he reached the flowery coast where dwelt the Lotus eaters, people who exist upon honeyed blossoms, and who live a life of dreamy forgetfulness. Three of his sturdy men had Odysseus sent forth to discover what manner of people were there, and at their delayed return, god-like Odysseus himself started in search of them.

Bright flowers and balmy air were there in that drowsy land through which Odysseus journeyed, greatly marvelling. Once he came upon an arbor, redolent with the heavy fragrance of the lotus, and questioned the youth who wandered there, about the land. But, with a smile in his dreamy eyes, the youth offered him a creamy blossom, and Odysseus passed on, disdaining it. With a misgiving heart, Odysseus soon came upon an open glade, where many people were assembled, among them his three soldiers. Advancing toward mighty Odysseus, with lotus blossoms in their hands, they bade him eat. Then would god-like Odysseus indeed have eaten of the honeyed flowers, and forgotten his fair land of Ithaca, had not the light form of the divine Speedycomer suddenly appeared at his side, forbidding him to taste the blossoms.

Then mighty Odysseus, blushing with shame, bound his sturdy men with ropes, and quickly led them from that drowsy land, lest he be tempted again by the lotus flowers. Embarking in his curved ships, Odysseus again trusted himself to the wine-dark sea, fleeing from that fateful land.

SECOND YEAR

When studying Webster's *First Bunker Hill Oration* in the second year, experiments similar to the following were tried. The third section of the oration beginning, "We live in a most extraordinary age," was read aloud in class. Then the pupils were asked to develop the same topic sentence, applying the thought to our own times. I offer a typical paper.

ADDRESS TO THE SHADE OF DANIEL WEBSTER

We live in a most extraordinary age. We have just read what you consider such an immense growth. From twelve million souls we have been augmented to about eighty-five million. Three outside territories and twenty-three states have been added to "Uncle Sam's" growing family. Such things as the telegraph and telephone, which are so common now, were not even dreamed of in your time. In the field of education the whole world has advanced with marvelous strides. Just think what Edison has done with electricity which was comparatively unknown in your day. Again only pause for a moment to consider the change in architecture and construction which has taken place since your famous oration in 1825. Compare the usefulness of the stage-coach with that of the Pullman car. The commerce of the country, which you boast of, would not equal that which is carried on by the city of New York. The navy of your time would not now be used as freight vessels. If you could come to life now it would take you all your life to get accustomed to our enlarged ideas and customs.

After the study of Webster's First Bunker Hill Oration and Washington's Farewell Address was completed, original orations were required of all the students on such subjects as:

A Flag Day Oration.
Speech for the Fourth of July.
Decoration Day.
Lincoln's Birth-Day.
The Twenty-second of February.

This illustration was written in class,—time about thirty-five minutes.

"DULCE ET DECORUM EST PRO PATRIA MORI"

From the very beginning of the settlement of America, this has been one of the noblest themes of Americans. It is the spirit which it portrays that the Pilgrim fathers brought with them when they left their native home to protect their rights. It was again displayed by our forefathers in the Revolutionary War and the great Civil War. The very thought of dying for one's country thrills every true soldier when he marches off to battle. For what better cause could he die? It is often the greatest desire of some persons to become popular. There is no better way in the world to attain this achievement, than to do some worthy deed for his country. Our great heroes are the most beloved of our people. Held in affection even above the poets, painters, and composers, their names always bring the satisfaction of heroism to future generations.

The greatest men, the noblest men, the men whose histories shall be loved and cherished forever are the ones who have died sweetly and becomingly for their country.

In connection with the study of *Ivanhoe* we tried ballad writing again. As a preparation two days were spent in the study of the meter and the spirit of some of the Robin Hood ballads. Then the members of the class were asked to write a ballad on some subject suggested by Ivanhoe. An alternative exercise of a prose incident was suggested. It is rather significant that only three members of the class chose the prose assignment. Such subjects as *Pax Vobiscum*, *The Clerk of Copmanhurst*, *Friar Tuck's Revels*, *Under the Greenwood*, were turned into creditable rhymes. Two examples follow.

THE PASSWORD

"If from this prison you would escape,
Change your suit for a friar's cape,
And to every one you meet,
Solemnly these words repeat,
'Pax vobiscum.'"

"Watch and ward, knight and squire,
That is all they will require,
Here your safety rest alone,
Speak it thus in a deep, grave tone,
'Pax vobiscum.'"

Cedric passed into the hall,
Heard a maiden to him call,
And to her he softly said,
As he passed with lowered head,
"Pax vobiscum."

Down the quiet hall he went,
Met a woman, old and bent,
To her greetings he replied
As he slowly stepped aside,
"Pax vobiscum."

Cedric stopped at a sudden call,
Before him stood a warrior tall,
Who lowered his long, sharp-pointed spear,
When he these solemn words did hear,
"Pax vobiscum."

Down the long hall Cedric passed,
Met stern Front-de-Bœuf at last,
And his heart within did quake,
As this solemn phrase he spake
"Pax vobiscum."

Out into the air he passed,
Through the gateway, free at last,
As he stood there, safe and free,
He murmured this phrase of liberty
"Pax vobiscum."

FRIAR TUCK'S REVEL

It would be hard to find, indeed,
A man who less obeyed his creed;
Who strove to go from bad to worse,
Than Friar Tuck of Copmanhurst.

He loved the sparkling quaff of wine,
On venison he chose to dine;
He joined the band of Robin, bold,
To satisfy his lust for gold.

Of worldly joys he liked to share:
To sup, to drink, hunt, sing, and swear;
His holy gown with texture thin,
Did cover a multitude of sin.

Once to this man King Richard went,
His mind was not on pleasure bent;
But his heart was filled with the utmost glee,
By a noisy feast of jollity.

The friar at first brought out some pease,
But this did not the Black Knight please;
So in order to satisfy his guest,
The holy monk procured his best.

A flagon of some good old cheer,
Accompanied was, by a cut of deer,
And seasoned with appropriate jest,
The knight and friar ate with zest.

Joy ran high the whole night through;
They toasted each—sang ballads, too,
And slacked many a long, long thirst,
From the friar's "well" of Copmanhurst.

While studying *Sohrab and Rustum*, the class tried their hand at Homeric similes after the manner of Arnold. I offer the following.

A WORK-SHOP IN FULL SWING

On an early spring morning a work-shop in full swing is a busy scene indeed. The ceaseless hum of the many busy workers can be heard constantly. *As bees in a hive pass in and out carrying their burdens of honey, then make the tiny cells and deposit their sweet substances into them, and buzz out again in a continuous stream, never stopping to rest or play; so the never ending stream of workers passes to and fro in the workshop.* Such a sight leaves one with an impression not soon to be forgotten.

It was very early. The sun just peeping above the hill's crest warmed the dewey grass. William, lazily driving the cows to pasture, drank in the sparkling freshness of the morn.

As in the spring the lark rising with the dawn, pours its bright song into the air, in one continuous burst of ecstasy, while swiftly it soars and high, for very joy it sings; so William for very joy of living, burst into song.

THIRD YEAR

The imitative work of the third and fourth years was productive of most satisfactory results. Genuine enthusiasm was shown and the effect of this practice on all the composition work was far-reaching. Especially note-worthy was the verse writing.

After the study of Chaucer's Prologue and The Knight's Tale, imitations were assigned. The response was surprising, both because of the number of pupils who handed in really creditable lines, and because of the note of appreciation evidenced by the product. The class took an imaginary journey to Mount Vernon, and described various characters observed on the steamer.

THE ARMY OFFICER

Now that ye wiste the reasons oon and all
Why that these sondry folk did chaunce to fall
Together, at Mount Vernon on a day
When was the Spring, 't was in the month of May,
Methinketh it is well, now, oon by oon,
To tellen ye of the folk, omitting noon,
Who formed this gay and merry companye.
First of a soldier of the Infantrye.
This soldier was a brave and worthy man
So brave was he, that when he first began
To fight for his countree, in battles bold,
He won renoun, as mayhap youv'e been told,
By taking all alone, and with no aid,
The famous man who led the other seide,
The General of the foe, it was eek he,
And for this deed, this worthy man, pardee,
Was made an officer with higher pay.
Now for his faithful work, he is this day
A Col'onel' honoured by men alle.
This ilke man, his honours bar withal
In way not proud, but with a modest mien.
His uniform he wore ful neat and clene,
With collar whyte and cuffs and gloves it lyke.
His shoes shone bright also his cappes peake.
More of his dress I need not tellen ye.
I think that he was cleped Smith, John A.

THE FOOT-BALL PLAYER

A foot-ball player eek with us ther was.
His heer was long and gold and shone lyk glas,
And it was thick and mussed and stoud about
In al directions; and he was stout
And eek he was ful brood and varray tall.
His arm was in a sling, that was not al,
He limped when he walked about the boat,
He wore a bandage tyde about his throat.
Upon his cheek ther was a scar ful reed,
A piece of sticking plaster on his heed.
For sothe he was a foot-ball man, with-alle,
But sooth to seyn, I noot how men him calle.

THE LITEL GIRL

A litel girl ther was on this viage,
And she the brightest on our pilgrimage,
Whyt was hir dress as is the dayesye
And she was clepen faire Emelye.
Ful semely hir lokkes as it were,
Hir eyen bright as is the morning sterre.
Full oft she song whyl on the deck she sat.
Upon hir arm she bar hir seylor hat.

With her she hadde a "Teddy Beare" smalle
Of her I telle yow no longer tale.

A WIF

A good wif was there fro the middle weste,
That sayde alway she thoght that home was beste;
Therefore up to this tyme she nadde stirred
Fro out her native town; ne hadde she feared
Thereby to ruste in the new world ways
But wolde in simple peace spend al her days.
A thrifty housekeeper she was, I gesse;
Ther coude noon in al hir town hir passe
In churning butter and in baking bread.
Hir hat with spangles bright was purfiled,
Hir gowne of blake was neet and wel y-made
And semed new, though it ten yeer she hadde.
In sooth she was a verry perfit wif;
Hir only fault that she talked out our lyf.

A SCOLE-GIRLE

A scole-girle was ther in this compaignye,
To Central High Scole went she to scoleye;
Yet of studie she took but litel hede,
For of Latin and Greek what hadde she nede?
Yet natheless ful well beloved was she,
So plesaunt and so brighte for to see.
Well coude she sing and pleyen all by note.
For all our ills her smyling was a bote.
A large reed hat she wore upon her heed.
As heavy was it as a pound of leed.
Therfor her heed she coulde not bend at alle,
Because she was aferd that it would falle.
A pompodour she hadde of yellow heres,
And a collar with points up to her eres.
Quite gay and jaunty was her appearance.
Delyte it was to have her aqueytaunce.

After the pupils had read Pope's *Rape of the Lock* and studied Halleck's comments on the rhyming couplet, the following assignment was given. "Write at least five rhyming couplets, preferably about some familiar matter of school life." Every pupil responded with interest and in some cases, success. One paper was that of a girl who could not get a start on her own initiative, but managed to convert a prose selection into very passable couplets. One of the interesting things about the experiment was the bringing out of unsuspected ability in pupils of careless or indifferent habits in their ordinary theme writing, especially among the boys. The two I quote are typical.

MY EFFORT FOR AN "E"

Though poets are as scarce as snow in May,
I must become one now my teachers say.
And while this poem will certainly be poor,
It can't be worse than some you'll get, I'm sure.

For unto very few this gift is sent,
And o'er this task much labor will be spent (?)
And writing poetry surely is no fun,
So I shall be quite pleased when this is done,
And if this stuff should please in like degree,
Perchance your pen will slip and I'll get "E"! ! !

THE END OF THE FIRST SEMESTER

The first semester was about to end;
The boys to books their minds began to lend.
All plays were shunned like very dangerous foes,
And girls paid less attention to their "beaux;"
All football was forgot and "skipping" too,
For dread examinations were in view;
The teachers wore those very worried airs
As if *they* were the ones who had the cares.
All inmates of the school seemed steeped in woes;—
The first semester was about to close.

While reading Cowper, Collins, Gray, and Goldsmith in Palgrave's *Golden Treasury* the following were produced by a class of boys in the McKinley Manual Training School. They were written in class, a period of forty-five minutes being given to the exercise.

TWILIGHT

The day now deepens slowly into dark
And flying birds no longer can be seen;
But in the deep'ning gloom, out on the green
The busy firefly shows his tiny spark
Which lights the way. Now all is still, but hark
A sound comes from the moonlight's misty sheen;
The night bird's presence is more felt than seen
As he pours forth his music through the park.
The twilight brings a peace and rest from care
Which like a balm o'er troubled spirits steal
And quiet give which through the day we've sought
In vain. And now that long wished calm is there,
Which e'en we in the night bird's music feel,
And which a blessing brings with ev'ry thought.

WASHINGTON, D. C., March 23, 1909.

Mr. Spectator,
Dear Sir:

In accordance with your avowed policy of bringing to the public notice, such faults as are not amenable to the law, nor yet of sufficient importance as to be reprimanded from the pulpit, I ask that you will devote some attention to censuring the practice of women wearing the "Merry Widow" hat. These hats are a source of the keenest annoyance to men, and are out of place entirely when worn in business places, or places of public amusement. In view of this fact, will you kindly bring to bear what influence you have with the women, on the adoption of a smaller style of headgear? Feeling sure that you will see the sense in this request, and hoping that you will be able to accede to it, I am

Yours respectfully,
A. LINCOLN SMITH.

In looking over Mr. Smith's opinion, I cannot but feel that he has exercised great moderation in expressing it. He has probably felt the subject to be broad enough to speak for itself. My own recent observations have proved to me most conclusively that these hats are a public nuisance; they are out of place everywhere; they constitute a real danger to humanity; and their vices are not offset by any virtue.

These hats are out of place everywhere, not alone at business places, and places of amusement, as Mr. Smith kindly says. The very streets themselves are often the witnesses of collisions between them, and, as for the street cars—well, I am almost inclined to agree with one of my facetious correspondents who suggests that the new Fourteenth Street cars were made so roomy in order to accommodate the passengers' hats rather than the passengers. It is almost absurd to urge that these hats are in the way in business places, the fact is too obvious. It would also be better were a smaller style substituted for them at such social affairs as call for a hat, since the innovation would not only eliminate the bad temper caused by continually trying to dodge these millinery achievements, but would greatly facilitate the movements of the guests attending these functions. Still less should the "Merry Widow" be worn in church. The pastors of the many churches in this city, have recognized the fact that a perpetual fear of our neighbor's hat is not conducive to pious thoughts, but rather changes the Golden Rule into a desire to "do to others as they do unto us." This desire, therefore, helps spread this style of hat, for if the "us" be women, when next they come to church, they are likewise provided with this combination shield and instrument for inflicting penance on the unfortunates next to them. That the ministers as a whole deplore the prevalence of the enormous hat is shown by the fact that several have already incidentally spoken against it in their sermons, and that others have threatened to do so, one well-known priest declaring that he would use the text, "Come down, topknots," as the foundation of a sermon against it. And, indeed, it seems to me, that these worthy disciples are right to regret that, in an age when church and theatre are hardly in harmony with one another, the freak product of the stage should inconvenience sincere worship.

Were it merely out of place in all phases of life, the "Merry Widow" hat would only be a negatively harmful fad. This it ceases to be, however, and becomes positively harmful when it becomes a physical, mental, and moral danger to the women who wear it as well as to the men. Not so much is heard against it from the former sex as from the latter, however, as the desire to be in style overpowers the annoyance caused by this particular style, and, like sheep, the women follow their Parisian leaders. The men, on the other hand, feel no hesitancy in declaring their attitude toward the "Merry Widow," when, if they only knew it, the real martyrs are the women who cheerfully sacrifice themselves on the altar of Dame Fashion. That man must not think himself the only sufferer, whose face bears scars as souvenirs of the unavoidable encounters with the stylish hat. If he does, let him think of the wearer of the hat; of the combined weight of her hat, and the coiffure necessary to set off the latter, and then ask himself which is most to be pitied, the woman who lacks sufficient independence of spirit to rid herself of a burden which saps her strength and dulls her wits, or the man who permits it to absorb such of his attention as could be more profitably directed eslewhere? The one is mental, the other is physical weakness. Both are morally harmed by this type of hat, for it encourages false pride in the woman, as shown by her self-repression in a mistaken cause, and it encourages bad temper in the man, some of the previously mentioned letters bearing witness to the latter fact. How much better it would be if the self-control capable of being exercised by women in a wrong cause, could be exercised for a higher cause, and how much more would the world be improved if men were as intent upon removing greater evils as they are upon removing the "Merry Widow" hat!

No matter how bad a thing may be, it is very seldom that there is not some redeeming feature about it. But even this virtue is missing in this outlandish headdress. The possible uses to which it might be put are in every case defeated by the ingenuity of its followers. It ceases to be useful as an umbrella when it, in turn, must be protected, and so calls forth a very long-handed parasol as a necessary adjunct to the well groomed woman's costume. Now that vegetable gardens constitute the fashionable trimming for hats, a turned-up brim suggests infinite possibilities as a market basket, but these, too, are shattered by the mushroom, the millinery name for the turned down shape, I am told. Even my last idea as to a possible use was dissipated by an incident which occurred but a few days ago. I was down in the New Union Station to bid a friend goodbye, when he suddenly called my attention to two effusive young ladies who were endeavoring to snatch a farewell kiss prior to the departure of one of them. Their hats prevented this, however, and so they were laying themselves open to criticism by laughing immoderately while trying to overcome this apparently insurmountable difficulty. Even as I nodded my disapproval of the spectacle, the thought suddenly occurred to me that here, at last, was a genuine use of the "Merry Widow" hat. The spread of disease germs by the kiss was not countenanced by it, I thought, and as two men seldom indulge in this salutation, my hopes for the increasing health of the world were waxing high. But I was doomed to disappointment. An idea suggested itself to the young women, and carrying it out, they were able to exchange a hearty kiss by tilting their heads on opposite sides. And so I gave up all hope of being the discoverer of a virtue in the "Merry Widow," even the virtue of beauty, for there is no beauty in topping any figure with an inverted dishpan.

In thus censuring the "Merry Widow" hat, I feel that I have censured but one of a number of the evils of female attire. It is almost impossible to devote a separate paper to each one of these extremes, for in this, the day of extremes, nearly every feature of the dress of our mothers and sisters, from the crowns of their beplumed hats to the soles of their absurdly high-heeled shoes, should come in for its share of condemnation. I can only hope that women may awaken to this fact, and by the exercise of sufficient firmness of purpose, keep their clothing along sensible lines and not sacrifice themselves, and sometimes others, mentally, morally, and physically to an extreme fashion simply because it is the fashion.

Fourth Year

The fourth year papers were more carefully worked out than those of the other papers. After studying Burke's speech *On Conciliation*, original speeches were required of each member of the class. These speeches were supposed to be delivered before audiences for some specific purpose. In more than one section, indeed the results astonished us all. The pupils without exception caught the manner and spirit of Burke. Such subjects as *The Nicaraguan Situation*, *In Defence of Football*, *Reform in Hairdressing*, *A Lincoln Memorial* were chosen. I quote the following.

THE STUDY OF BURKE'S SPEECH ON CONCILIATION

A few weeks ago my noble friend in the blue skirt asked a review question on Burke. Upon the discovery that no one in the class knew the answer, she stepped before us and said, "You look dazed, you look as if you were getting nothing from your Burke. I am afraid the effect of Burke is but temporary, but uncertain. I hope it does not impair the object." I do confess that I disagree with her when she says that, as I at least have gotten some fixed ideas from the speech.

Surely it is an awful subject, or there is none so on this side of the grave. It is a subject that has not only kept me in at nights, but awake. It is a subject that has deprived me of great pleasures. It is such a subject, that, when my honorable friends of the shoulder straps stood up to recite, their ideas were blown about by every wind of fashionable doctrine.

The proposition is education. Not education through the medium of light reading; not education to be hunted through the labyrinth of exciting fiction; not education to arise out of universal small talk. It is simple education sought in its natural course and in its ordinary haunts. It is education sought in the spirit of education, and laid upon a firm foundation. I propose by the study of Burke to give permanent knowledge.

The capital leading questions are these two:

First, whether we are capable of studying Burke's Speech in the fourth year; and secondly, whether we are benefitted by studying it. The first question composes four fundamental propositions. The propositions are all mere matters of fact, and if they are such facts as draw irresistible conclusions, even in the stating, this is the power of truth and not any management of mine.

The first is a resolution—

"That the pupils of the fourth year of Central High School, consisting of five separate sections, and containing about one hundred and fifty pupils, are not too young and immature for the study of Burke's speech *On Conciliation*." This is a plain matter of fact, necessary to be laid down; as one glance at us would convince the most sceptical.

The second is like unto the first—

"That the said pupils have been touched and grieved by the doubt of their ability to study and comprehend Burke's Speech."

The next proposition is—

"That during the first three years of high school the work of the pupils has been devised for the purpose of developing an ability to undertake the study of Burke."

The fourth resolution is—

"That each of the said pupils hath within himself a brain capable of understanding Burke's speech *On Conciliation*, with powers to discuss, to apply, and to write papers upon the propositions contained therein."

This makes the whole of the fundamental part of the plan of my first question. The conclusion is irresistible. Now if we pupils are capable of studying Burke, are we benefitted by it? Of course we are; there is none among us who could not give the substance of at least five of the six propositions. There is none among us who could not converse intelligently upon the speech in general. There is none among us who has not formed some fixed ideas upon it.

Just think, it has all happened within the short period of three months. Suppose that an angel were to have come to us at the beginning of the year, when Burke's speech was unknown to us, and have said: "See, there is Burke, which at this day is only the title of a strange book; yet shall you, before Christmas, not only read and study, but understand this book. Upon your minds shall be deeply engravened the struggles and the trials, the misfortunes and the triumphs of the colonies. From your pens shall flow papers upon this mighty subject!" If this state of our study had been foretold to us, would it not have required all the sanguine credulity of youth, and all the fervid glow of enthusiasm, to make us believe it? Fortunate pupils, we have lived to see it! As we have been enabled to write pages upon Burke, surely we are capable of handling it and are benefited by it.

My honorable opponents will say that what we get from Burke is temporary, is uncertain, and impairs the object. But it is not temporary; for years could not blot from the mind, that which has been thoroughly studied when young. It is not uncertain, because during three solid months, four times a week, no pupil could succeed in evading Burke; and it cannot impair the object because it was the most celebrated speech, of the best informed man, upon the subject of the greatest importance at that time.

Since our main object of to-day is to broaden our minds, we should not weaken them by reading cheap novels. My idea, therefore, is to study works like Burke's speech.

For that service, for all service, my trust is in our interest in Burke. Let us always keep the idea of Burke associated with our education—it will cling and grapple to us, and no force under heaven will be of power sufficient to tear it from our heads. But let it once be understood that our education may be one thing and Burke's Speech another; that these two things may exist without any mutual relation—the cement is gone, the cohesion is loosened, and everything hastens to forgetfulness and narrow mindedness. The more books we read, the greater friend we will find in Burke, the more ardently we love learning, the more perfect will be our understanding of it. Cheap novels we can have anywhere. They are weeds that grow in every soil. We may have them from France; we may have them from Germany. But until we become lost to all feeling of our true interest and our natural dignity, good reading we can always have from Burke. This is the true link of education, which secures to us wealth of literature. Do not entertain so weak an imagination that our light fiction and our small talk are what form the great staples of our education. These things do not make our education. Dead instruments, passive tools as they are, it is the spirit of Burke that gives to us knowledge and understanding. It is the spirit of Burke's speech, which, infused through the mighty mass, pervades, feeds, unites, invigorates, vivifies every part of the fourth year, even down to the minutest member. (The Goldust Twin).

In full confidence of this unalterable truth, I now lay the first stone of our education—

That the pupils of the fourth year of Central High School, consisting of five separate sections, and containing one hundred and fifty pupils, are not too young and immature for the study of Burke's speech *On Conciliation.* (Quod Erat Demonstrandum!)

REPRESENTATIVE B———'S SPEECH

On His Bill Authorizing the Secretary of State to Officially Recognize Estrada's Government as the Government of Nicaragua

Delivered in the House of Representatives, January —, 1910

The Nicaraguan situation, Mr. Speaker, is surely an awful subject. The execution of two Americans, by order of Zelaya, compels us to take up the matter for discussion.

The proposition is peace for Nicaragua, whether it be peace through the medium of war, or peace hunted through the labyrinth of intricate and endless negotiations. It is simply peace for Nicaragua for which we are seeking. It may not be peace sought in the spirit of peace or laid in principles purely pacific; however, I propose, by removing the cause of the disruption to establish peace in Nicaragua.

This government, in sending the battle ship *Prairie* to Nicaragua, has made some steps toward peace in Nicaragua. It has gone farther; it has refused recognition to Zelaya's representative.

The capital leading questions on which you must this day decide, are these two: First, whether you ought to intercede; and secondly, what your intercession ought to be. On the first of these questions, we have gained (as I have just taken the liberty of observing to you) some ground. However, Mr. Speaker, to enable us to determine both on the one and the other of these great questions with a fair and precise judgment, I think it may be necessary to consider distinctly the true nature and the peculiar circumstances of the Nicaraguan situation, because, we must treat the subject according to the nature and circumstances, and not according to our own imaginations, nor according to abstract ideas of right.

The first thing that we have to consider with regard to the nature of the object is, the size and population of Nicaragua. It contains only 49,000 square miles, which is about the size of Louisiana. There are but 500,000 inhabitants in the entire country, or less than one-sixth of the population of New York City.

I have here the consular reports, which give an approximate idea of the volume of foreign commerce of Nicaragua. The import trade of Nicaragua in 1901 amounted to the paltry sum of $3,240,000; the export trade in the same year amounted to $2,736,000.

I pass, now, to Nicaragua, in another point of view—its agriculture. The farming regions of the west are capable of vastly greater development than has yet been attained. At its highest point of development, however, it could not compare with our southern states. Indeed, the Nicaraguan country is not one which specializes in agriculture.

Manufacturing enterprises, too, are little developed. The country depends for its manufactures chiefly upon imports.

Nicaragua, Mr. Speaker, is not a noble object; it is not an object worth fighting for. Although force would be permanent, as Nicaragua has not a large enough army or navy to overthrow one battle ship, if it were stationed there, although force would be certain for the same reason, although force would not impair the object, since the Nicaraguans would be afraid to fight if a fleet were sent there, and therefore, there would be no blood shed,—although all these things are true, yet force (and by the word force, I imply a battle) would not be expedient.

There are, however, three ways of dealing with the matter of intercession. Either we may prosecute Zelaya as a criminal, take Nicaragua under our protection as a possession, or change the spirit of the government by recognizing Estrada's government. I would not be guilty of an imperfect enumeration. I can think of but these three. Another might be thought of,—that of dropping the matter, entirely—but it would meet with so slight a reception, that I do not think myself obliged to dwell a great while upon it.

The first of these plans, to prosecute Zelaya as a criminal, I think is the most like a systematic proceeding. It is radical in its principle, and while it would not be impossible, it would be quite inexpedient to bring the ruler of one country to another country for trial. It would, surely, place us in an embarrassing position.

If then, Mr. Speaker, it seems inexpedient to bring Zelaya to the United States for trial—the second mode under consideration is, to establish Nicaragua as one of the possessions of the United States.

This proposition, in my mind, needs little consideration. It would not be worth the trouble (however little that trouble might be) to make Nicaragua a possession. There is not enough of Nicaragua that is worth having.

If, then, the prosecution of Zelaya as a criminal is inexpedient, if the establishing of Nicaragua as a possession is utter folly, what way yet remains? No way is open but the third and last—to recognize Estrada's government.

My idea, therefore, without considering whether we yield as a matter of right, or grant as a matter of favor, is to establish Estrada's government in Nicaragua.

In forming a plan for this purpose, I endeavored to put myself in that frame of mind which was the most natural and the most reasonable, and which was certainly the most probable means of securing me from all error. I set out with a perfect distrust of my own abilities and a total renunciation of every speculation of my own.

I have, therefore, presented this bill authorizing the Secretary of State to officially recognize Estrada's government as the government of Nicaragua.

The following are extracts from a speech urging a return to a simpler mode of hair-dressing.

My proposition is reform. Not reform through new devices of labyrinths of intricate and endless puffs; not reform resulting in precise and unbecoming arrangements. It is simple reform sought in its natural course and in the spirit of reform. I propose, by removing all unnecessary rats and puffs, and by restoring the former natural and becoming arrangment of the hair, to give permanent satisfaction to both sexes, male and female. My idea is nothing more. Towering masses of hair supported by rats give ever the appearance of confusion. A simple becomingness of arrangement of hair, which is as easily seen at the first view, as rats are surely detected at last, is, let me say, of no mean force in judging the beauty of a girl.

. . . .

And finally you say, "At least we cannot manage without roughing our hair." To this I reply that gentle management is better than force. For the good effects of roughing are but temporary, for the hair soon falls. In the second place it is uncertain, for at times the hair refuses to be roughed. Thirdly, I must testify that I have had no favorable experience with roughing; and in the fourth place roughing impairs the very object which you think it improves, for it breaks and splits the hair, keeps it from growing and in attempts to remove tangles, great quantities are pulled out.

When the pupils had finished their study of "*L'Allegro*" and "*Il Penseroso*," they were asked to prepare two companion pieces—pictures—imitating Milton as closely as possible. Out of a class of thirty-five, half sent in good verses. The following is, perhaps, the best one. Though on a hackneyed subject, it seems to me rather remarkable in its fidelity to the model, and in its consistency of form and thought.

SPRING

Hence, Autumn drear and dismal,
    Thou somber child of old age and decay,
In garb of leaden gray!
    Hence to thy distant birthplace,—depths abysmal
Where no rays penetrate,
    But darkness reigns supreme. There 'mid the shades
Of all on Earth that fades,
    And blasted hopes and wishes unfulfilled,
And dreams untimely killed,
    In that dark reign of horrors hold thy state!
    But come, descend on airy wing,

Thou ever-joyous goddess, Spring,
Thou fairest child of Mother Earth,
Whom our great Mother, at a birth,
Bore to laughter-loving Joy,
When he came, a blithesome boy,
Scattering smiles and merriment,
Breathing peace and heart's content,
Putting Care's dull crew to flight,
Conquering all in youthful might—
Yet a boy; for, as have sung
The poets, Joy is ever young.
Blithe he came, with airy tread,
Sunbeams playing round his head;
'Neath his footstep flowers sprang;
O'er his head the wild birds sang.
And on that ever-dolorous day
When Selfishness drove him away,
Banished from Earth, with loving care
He left us thee, his daughter fair.
Then come, enchantress, goddess, queen!
Clad in a robe of softest green,
Broidered all with budding twig;
In thy hand a leafy sprig,
Wand of necromantic power,
Causing field and wood to flower,
Decking in a grassy gown
The wintry meadows sere and brown,
Painting blue the leaden sky
Teaching birds their melody,
Imparting to the lifeless earth
The magic of a second birth,
Come, and dancing, lead with thee
In jocund round thy daughters three!
First, April, clad in stainless white,
And in her hand a lily bright,
A maiden yet of tender years,
Half made of smiles and half of tears.
Then, somewhat older than her fellow,
Her sister May, in robe of yellow,
Who leads us all in captive train,
By fetters of a daisy-chain,
And like a Circe bids us sup
Her magic from a buttercup.
And last of all the virgin June,
In trailing gown of soft maroon,
In whose soft cheek the color flows
Brighter than the full-blown rose.
And, Spring, if I give honor due,
Grant that I may live with you,
And share those innocent delights
To which a life with you invites:
To rise while yet the dew of morn
Glistens pendent from the thorn,
And in the buttercup's bright chalice
Forms a draught fit for a palace,
Yet free to every feathered scamp
That roves the fields; and then to tramp
Across the dewy countryside,

And view from high the landscape wide;
The woods, of late so dark and grim,
Now budding forth in every limb
And forming to the entire scene
A waving background of dark green;
In front, the meadows daisy-starred,
And here and there by brooklets barred;
Off in the distance, mountains blue
And shining river end the view.
To hear the russet robin sing;
To see the oriole's hang-nest swing;
To smell the fragrance of the thyme;
To listen to the water's chime;
The chirp of nestling birds to hear,
And say within me, "Spring is here!"
    These pleasures, fairest Springtime, give,
And I with thee will choose to live.

AUTUMN

Hence, drowsy, slothful Spring,
    Dull sluggard born of Idleness and Sleep,
By Lethe's stagnant deep,
    Where lies forgetfulness of everything!
Seek out the Lotus-land
    Where sluggards eat and drowse and dully dream;
Or else thy native stream,
    And drink oblivion to thy dullard soul,
And where its waters roll,
    Such languid souls as love thy ways command!
    But come, thou fairest nymph of all,
Whom some call Autumn, others Fall,
Thou sprightly nymph whom Summer bore
The elf Jack Frost in days of yore,
When he came, mischievous fellow!
Clad in motley red and yellow,
Painting with his magic brush,
On tree and creeper, brake and bush,
The leaves the verdant woodland through
In each myriad rainbow hue;
Curtaining the frosted glass,
With filmy veil of fairy lace;
Powdering gray the stubble rows,
Nipping sharp the ruddy nose;
Sportive with a thousand quips,
Laughter bubbling from his lips.
Thee gentle Summer to him bore,
Like him, but like thy mother more.
    Come, frolic nymph—yet queenly, too—
In garb of iridescent hue,
Soft-shimmering with celestial gleam,
And flashing to each dancing beam
A thousand tints of wood and wold:
Now the chestnut's russet sheen,
Now autumn leaves' incarnadine,
And now the heaven's ethereal blue,
Yet all one comprehensive hue;
And in thy hand thy bounteous horn
Brimful with ripening fruit and corn,

The plenteous yield of hill and plain,
Orchard, and field of waving grain.
    Come, and romping, lead with thee
In frolic round thy daughters three:
September first, the princess-maid
In gown of cloth-of-gold arrayed,
And bearing in her dainty hand
Of goldenrod a royal wand:
October next, in motley hue
Of scarlet, yellow, brown, and blue,
Crowned with a garland of bright leaves,
And in her hand the ripening sheaves,
And mellow apples, round and sleek,
Yet no whit redder than her cheek;
Then brisk November, in a gown
Full rich with glowing russet brown,
Her lap with auburn chestnuts stored,
(The furry squirrel's secret hoard.)
And, fairest Autumn, if I give
Due honor, grant that I may live
With thee and with thy daughters three,
In unreproved pleasures free:
    To rise while yet the purple mist
Which all the landscape wide has kissed
Still hangs caressing o'er the ground,
And deadens every grating sound,
And, as it slowly lifts, to tread
Beneath the canopy o'erhead
Of gorgeous autumn leaves, and mark
The fragrance of the pine-trees dark;
The brush-tailed squirrel to espy,
And coax his slow advances shy,
Who coy, yet eager, forward darts,
And at the slightest movement starts,
Till, sniffing at the empty palm,
Away he whisks in swift alarm;
And thence emerging to the field,
To mark the wheat-field's golden yield,
The plumed ranks of waving corn,
Trees by their plenteous yield down-borne.
    Then to the gridiron's sturdy strife,
Where, gayly hazardous of life,
The surging lines together sway
And mingle in tumultuous fray,
Till o'er their foes the victors roll
And sweep triumphant towards the goal,
While gallant pennants gayly flare,
And cheers and school-yells rend the air,
And fast the eager pulses race,
And voice and flashing eye keep pace.
    Thence homeward to the festal board
With turkey and cranberry stored
And finish with our Maker's praise
Another of thy golden days.
    These pleasures, fairest Autumn, give,
And I with thee will choose to live.

Heroic verse was again discussed in the fourth year. Some of the classes read Pope's *Rape of the Lock* for the first time.

Then the writing of heroic lines was assigned. In one class each pupil was asked to make a couplet characteristic in some way of a member of the class. Every pupil handed in a couplet, some rather bright. Next, at least twelve lines were required. There were only two pupils out of a class of thirty-six who could do nothing with this exercise. A clever bit, indeed, is the following from another class.

TO MISS McCOLM

O Lady Anne, pray lend a fav'ring ear,
And hearken to my tale of suff'ring drear.
I've struggled all night long, with might and main
I've toiled and worked, and suffered grievous pain,
But though the task has made me feel quite blue,
This, the result, I dedicate to you.
For thou, it was, who, in my dreadful plight,
Suggested that from Mother Goose, I write.
I 've done my best; the poor results thou'lt see.
But gracious lady dear, pray pity me,
And give a poor benighted one her due,
This is the only boon I ask of you.
P. S. O pardon me for writing "Lady Anne,"
But "Miss McColm" sounds too American
To use when one heroic verse would write,
O grant my prayer, and pardon Helen White.

JACK AND JILL (Revised)

The mighty quest of Jack, the direful spring
Of all his woes, O heav'nly Goddess, sing!
The mighty quest, which caused the youth to fall,
And suffer grievous pain and loudly bawl.
Declare, O Muse! in what ill-fated hour
Befell the doom, from what offended power?
    The mother of the youth did vainly bail
But got no drop of water from her pail.
"Most noble Jack, and thou too, lovely Jill,
Now take this pail, and go to yonder hill,
And there do thou the mighty god implore
That he will water give, for we need more."
    He heard her words, and with a mighty spring
He left the portal, whilst the maid did bring
The wooden pail, in which the gift to bear,
If from the fav'ring power, there came a share.
With eager steps, they went along their way,
And when they reached the hill, thus did they pray.
    "O heav'nly one, pray lend a fav'ring ear
And give, most gracious pow'r, us water here.
In times gone past, thou'st aided Jack and Jill
O grant our prayer, if 't is thy sovereign will."
    The prayer was heard, the fav'ring god attends,
And with his arm, his mighty bow, he bends.
An arrow flew, the earth was rent in twain,
The crystal waters flowed, and flowed again.
Then swift the youth and maiden filled their pail,
And turned their footsteps downward to the dale.
With joyful hearts, they went along the way.

(Between them did the bucket gently sway.)
    Meanwhile high up in heav'n Jove's consort fair
Looked down with jealous eyes upon the pair.
And as they swiftly went their downward way,
Thus did she to the king of heaven pray.
    "Almighty Jove, thou wieldest sovereign pow'r;
Cause yonder merry youth to rue the hour
When from my peacock's nest, the eggs he stole.
Pray, let him slip, and down this steep hill roll."
    The father heard, and bent his awful head,
Called forth his winged messenger, and said,
    "Son of Maia, wing thy way below,
Approach the hill from whence the waters flow,
Bring due mishap to yonder careless boy,
Let him be punished for his former joy."
He spoke, and turned his mighty head away,
While Maia's son to earth, sped on his way.
    Invisible to them, the god did place
A stone right in their way, to stay their pace.
Now careless Jack approached with sprightly tread,
But tripped, and quickly rolled upon his head.
And little Jill, with mighty efforts brave
Did try, but fell, ere she the pail could save;
But quick recov'ring from this dreadful plight,
She ran, right swift of pace, with all her might,
And brought some mighty heroes to the hill
Where poor Jack lay, unconscious, white and still.
Him in their arms they bore, so limp and white,
And brought him to the city in this plight.
    The kindly matrons gathered 'round the lad,
And wrung their hands and sighed, "Alas! too bad."
However 'mongst that mighty throng were some
Who, knowing what was best, said, "Take him home."
Then, toward his home, did they the boy bear,
And 'round his body wept and tore their hair.
At length their tears were stayed, they turned away,
And went, some back to work and some to play.
    Thus ceased the tears that o'er his fall were shed,
And Jack quite calmly rested in his bed.

The final imitative exercise came after reading Lamb's *Essays of Elia*. The work was uniformly good throughout the classes. The following is representative.

A CHAPTER ON WRITING

I cannot write.

Mistake me not reader, nor imagine that I have grown up a child of neglect, uninstructed in the science of the three "r"s, or that I am utterly incapable of wielding the pen, that so indispensable a communicator of the thoughts, that mighty power which molds and sways the opinions of nations.

But when I state that I cannot write, I mean—I cannot write compositions. While my companions at school sit about me diligently writing, their thoughts growing into half a page, and two pages, I sit gnawing my pencil,—what shall I write? The subject in hand is one to which I have never given a thought, or if I have, where are these thoughts? They are gone, and I attempt in vain to recall them. A glance at my rapidly diminishing pencil warns me that the hour is quickly slipping by. I make a bold beginning and jot down part of a long periodic sentence. Having done so, I consume many minutes more, deliberating how to complete this sentence which I have so rashly consigned to my paper.

When I sit down to write to my chum, my thoughts come thick and fast, my pen racing along to keep pace with the ever increasing ideas which I wish to communicate to her; but when I am assigned to write a letter to some imaginary grandmother, to be read and criticised by the teacher, my pen refuses to execute its task, and the letter emerges, an enumeration of cut and dried remarks strung together by an interminable series of "ands" and "howevers."

In what constant misery I am kept! When I am supposed to compose something humorous, my thoughts become most morose, and my brow becomes lined with gloomy reflections. Am I on the other hand to write a poem dealing with the heroic and the sublime, then the most foolish and ludicrous suggestions arise in my mind, so that I am incapable of retaining any feasible original plan I may have had.

But great is indeed my affliction when

We are told in awful accents,
That a sonnet we must write;
And in lofty tone of Milton,
Foolish thoughts of ours write.

I cannot imagine myself back in the days of Chaucer and invent a tale of chivalrous knighthood, nor can I present speeches and spin fine arguments on civil questions after the manner of Burke. My attempts at a Lamb's essay might cause poor Elia and his affectionate Bridget to shake their heads in dismay over their blue China teacups. I spend sleepless nights reflecting how to treat common-place subjects in imitation of *L'Allegro* and *Il Penseroso*, and after a long search for a word to rhyme with summer, I at last hit upon the lucky suggestion of plumber, resulting in the following poetic couplet:

The golden moon of balmy summer,
Casts its beams upon the plumber.

I awake suddenly in the silence of the night chilled with horrible visions. I see the angry form of Milton beckoning and threatening with a massive key of iron. O dear reader, what are not the afflictions through which I must pass. Every holiday is darkened by gloomy apprehensions of what must be written ere they end. Every scene, every incident suggests itself as a subject for some dismal essay, and is rejected as not affording sufficient material. Each uncommon face in a street car may perhaps be used in a character sketch, or some distinguished looking young man may be turned into the hero of a short romance. This, in short is the thorny path to be beaten by the unfortunate mortal who has no talent, either "sentimentally" or "organically" for the gentle art of writing.

In conclusion I must repeat that the pupils gained much from these exercises in power of attack, in readiness of response, in keenness of appreciation. But the greatest good of all came in the stimulation of interest in the theme work. To all teachers who have never made such experiments we earnestly say, "Try."

REPORT ON THE HYGIENIC AND SANITARY CONDITION OF A PUBLIC SCHOOL BUILDING[1]

By W. E. McGown
From the Educational Laboratory, Cornell University

Through the courtesy of Supt. ———, the writer was permitted to undertake an examination of the hygienic and sanitary condition of the 'Central School' in ———. This examination, which was carried on under the direction of Professor Whipple of the Department of Education, Cornell University, embraced an inspection of the heating, ventilation, illumination, and sanitary appliances in the building. The present paper aims to render an account of the conditions that were found and to suggest a number of ways in which improvements could be made at relatively small expense.

THE BUILDING

The Central School, situated at the corner of ——— and ——— Sts., is one of the city's grade schools. It is a two-story, frame structure, built without any form of fire-proofing. Its general floor plan is the familiar one of a central corridor with class rooms on either side and stairways at both ends. From the second floor there are also two outside stairways which are designed to serve as supplementary exits in case of fire.

THE GROUNDS AND SITE

The grounds are some three times the floor area of the building. In the rear there is an unobstructed space for play, but the grounds in other portions are fenced off by low barriers, and are apparently not available for play (at the time of this inspection the weather and soil conditions were such that the pupils could not use the grounds at all).

There are a number of large trees on the grounds. Several of these trees are so near the building that they interfere seriously with the illumination of the classrooms. These trees need judicious trimming and several of them could be removed entirely to advantage.

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[1] This report was prepared by Mr. McGown as an assignment in connection with advanced work in school hygiene. It was not intended for publication, but is reproduced in this *Journal*, at the suggestion of several persons, as an illustration of the kind of investigation that may be conducted with practical advantage by competent students of school hygiene. Readers may be interested to know that most of the improvements that the paper recommends were subsequently introduced by the Board of Education of the city in question. G. M. W.

Not far from the school and in the path of the prevailing winds is a gas plant, the odors of which are not infrequently very disagreeably noticeable. Whether the school was erected after the gas-plant or the gas-plant after the school, I have not discovered. In either event, the present situation constitutes a nuisance from the point of view of the hygiene of the school. If the present building is ever replaced by a new one, it would, in my opinion, be highly undesirable to use the same site again.

HEATING AND VENTILATION

The building is heated by hot air furnaces and a simple gravity system, of a pattern that is now considered obsolete for schoolhouse heating. The warm air inlets are placed either in the floors or in the walls near the floors; in accordance with the best modern practice they should, of course, be placed in the side walls above the level of the 'breathing line.'

There is in each room an outlet flue for the conveyance of foul air into a central chimney near the middle of the building. This chimney was formerly used as a smoke-flue at a time when the building was heated by stoves. When furnace-heating was installed the chimney was converted, theoretically, into an aspirating chimney by connecting it with the foul air flues from the classrooms and by installing a stove at its base to furnish an upward current of air. When the building was inspected there was no fire in this stove; so far as could be determined there never has been any; at least the janitor was ignorant of its use. In consequence of this unfortunate neglect of a useful device, the outlet or foul air flues in the Central School might as well never have been introduced. Anemometer tests showed that not a particle of air was being withdrawn from the classrooms through the agency of the aspirating chimney. I would recommend that the janitor be instructed to maintain a fire in the chimney-heater and to make sure that all outlet flues were open and in active operation daily. The operation of this flue would cost but a negligible amount and would, presumably, facilitate the introduction into the classrooms of warm air from the furnace.

Ventilation tests are most satisfactorily conducted by the quantitative determination of the carbon dioxide of the air. Normal outdoor air contains 4 parts of carbon dioxide per 10,000; many hygienic experts place the limit for ideal or first-class ventilation at 6 parts or 7 parts, but we may deem 10 parts, perhaps, a permissible limit for satisfactory or acceptable ventilation. The presence of from 10 to 20 parts of carbon dioxide per ten thousand indicates bad air, of from 20 to 40 parts, very bad air, and above 40 parts, extremely bad air.

Several classrooms in the Central School were tested with the Pettersson-Palmqvist apparatus for the determination of carbon dioxide. This instrument admits of a high degree of accuracy and yields direct readings in parts per ten thousand of CO_2. (The instrument is described in the Appendix of this report; the detailed results obtained by its use are also given there.) Our analyses showed that the carbon dioxide content in this school rises within a few minutes after the assembling of the pupils to 10 parts, and from this time until school is dismissed steadily increases to from 20 to 24 parts per ten thousand. In other words, the pupils in the Central School practically breathe air that would technically be ranked as 'bad' or 'very bad' throughout their school day. The ventilation system of this school does not ventilate, and the quantity of fresh air supplied falls far short of the minimal limit set by the school regulations of New York State (in the rules governing the construction of the new buildings). If the aspirating chimney were set in operation as previously recommended there is no doubt but the ventilation would be appreciably improved.

The *temperature* of the classrooms inspected was, on the whole, maintained within reasonable limits by opening windows as the need arose. In severe weather it would be impossible to control the temperature in this manner and the air in these rooms could not fail to be in worse condition, both as regards temperature and vitiation, than it was in the comparatively mild weather that prevailed when our tests were made.

There is no provision in this building for heating the halls and closets, although, as will be shown later, there is urgent need of some provision for such heating.

The *relative humidity* of the air in a number of classrooms was determined by means of a whirling wet-dry bulb thermometer (see Appendix). According to these tests, the relative humidity ranged from 20 to 30%, with an average of 24%. Since the normal outdoor humidity is not less than 60%, and since these tests were conducted in damp or rainy weather when the conditions were favorable for a high humidity indoors, it is evident that the air in the Central School is extremely dry. The effects of breathing this dry, vitiated air are well known to all medical and hygienic authorities;

in particular, pupils may be expected to develop chronic affections of the throat and lungs. Doubtless it is out of the question, in the present circumstances, to install humidifying apparatus in the Central School, but the conditions revealed in our tests may serve as a reminder of the desirability of making such an installation if a new building is constructed. Experts now compute the cost of proper humidification as approximately equal to an addition of 5% to the cost of heating,—an addition that will return hygienic benefits sufficient to justify its introduction.

ILLUMINATION

The rooms in the Central School are, in the main, of two sizes, 26′ x 24′ and 20′ x 30′. In general, the lighting arrangements are good. The ratio of glass to floor area is within the ratio 1 : 6 prescribed by experts. In the 2d grade, Room 1, however, the seating is wrongly placed, and the light comes from the back instead of from the left side, or from the left and back with preponderance of left light.

Though the building is thus adequately provided with window surface, the teachers, unfortunately, do not utilize this surface in such a manner as to secure adequate illumination. The following criticisms may be made.

(*a*) The windows, at the time of our visits, were sadly in need of cleaning; they all were covered with dust and dirt, so that the amount of light available was materially reduced.

(*b*) Several of the teachers failed to adjust the window-shades in accordance with the requirements of illumination. Shades that had been drawn in sunshiny weather were still pulled down on one of the darkest days of the year. In one instance a curtain had been broken for some time so that it could not be moved from before the window, and this defect had not been reported to the janitor or other responsible party.

(*c*) Some windows were filled with plants so large as to reduce the light by a considerable quantity. However desirable growing plants may be, they should not be allowed to interfere with the illumination of the classroom.

(*d*) In one or two rooms the seating capacity was not used to its full extent, yet desks in the best lighted row next the windows were unoccupïed and pupils were seated in the darkest row.

(*e*) The degree of illumination could be measurably augmented by trimming all the trees in the school yard and removing some of them entirely, as previously suggested.

(*f*) The recent tests of vision of the pupils in the Central School, in the administration of which we were permitted to assist, revealed a large percentage of visual defect. The seating of all pupils found defective in these tests should now be rearranged to bring the myopic children in the front rows and all other defective pupils into the best lighted desks next the windows.

Sanitary Appliances

In the Central School the toilet rooms are placed in a well or large shaft inside the building. They are surrounded on all sides, practically, by the classrooms. They receive a feeble illumination from sky-lights at the top of the well in which they are situated, and they are supposed to be ventilated by a number of swinging sash-windows at the top of the well. Each closet room opens into the common shaft directly, being screened from it simply by coarse wire netting.

It goes without saying that if closets are to be located inside the school building, elaborate precautions must be taken to avoid a nuisance. A prime requisite of school construction is that toilet rooms must receive direct illumination from the sun, must be amply warmed, and must be supplied with a continuous powerful draft of air for ventilation, presumably by a special system of aspirating chimneys or exhaust-fans. These well known principles of hygienic construction are all violated in the Central School. The sunlight never penetrates to the closet rooms; there is no source of heat; there is virtually no ventilation. As a consequence the stink of these closets is the first thing that greets the nose of the visitor, and the classrooms are all more or less permeated by vile odors from them. The closets are not kept clean. The deodorizer that is used only helps to advertise their presence. In the absence of sunlight, the best natural germicide and sterilizing agency, these closets must be kept scrupulously clean and must be supplied with generous ventilation.

Drinking cups. This school has been equipped with enamel sinks. It would not entail much expense to attach sanitary drinking founts to eliminate the danger that now exists from the use of the common drinking cup.[1]

Professor Davison, of Lafayette College, recently placed a sterilized glass tumbler in a public school where it was used for nine days. When broken at the end of this time and subjected to bacteriological examination there were found not less than 100,000 bacteria per square inch of glass surface; the upper third of the glass was so thickly strewn with human cells scraped from the lips of the pupils that the head of a pin could not be touched to any spot on the glass without coming in contact with several of these bits of skin; the saliva, by running down on the inside of the glass, had carried countless cells and bacteria to the bottom.

The pupils not only drink from the same cup, but wipe their hands and faces on the proverbial 'school towel.' There can scarcely be imagined a more satisfactory device for the spreading of trachoma and other infectious eye diseases.

CLEANING

In the Central School the wood floors are in a very poor condition; there are wide cracks between the boards; the boards themselves are rough and very difficult to clean. All the floors need renovating. If they were first given a thorough scrubbing with soap and warm water, then dried, scraped or planed, it is possible that a crack filler could be used to advantage. At least the cleaning and scraping should be followed with a skillful application of some standard oil dressing. If this is applied evenly and sparingly it will not prove a nuisance and will very considerably reduce the amount of floating dust in the schoolrooms.

The dust difficulty is at present aggravated by the inexcusable practice of the janitor, who sweeps the corridor floors during the school session, and thus stirs up millions of dust particles which permeate every room in the building. If the floors were oiled, as just suggested, swept in the afternoon at the close of each session, and if the desks and furniture were dusted in the morning before nine o'clock, the dust problem could be successfully handled, in so far as the construction and equipment of the building will permit.

SCHOOL FURNITURE

The hygienic seating of pupils could be facilitated by placing in each classroom a limited number of adjustable desks. The present desks and chairs do not conform with modern hygienic prescriptions.

CONCLUSIONS AND RECOMMENDATIONS

The Central School is an old building on a poor site. As the best way of meeting the difficulties we have outlined would be to erect another building on a better site, we have no radical changes to suggest in the present structure. At the same time, it is realized that new buildings cannot always be had for the wish; they come but slowly, even when urgent need is apparent. On the assumption that the Central School will be continued in use, we venture to make a number of suggestions which we believe are of practical worth, and which can be put into operation with but a small outlay of money and attention. We believe that the improvements are well worth the outlay.

1. Trim the trees in and about the school yard.

2. Put the stove at the bottom of the aspirating chimney into condition for use, and instruct the janitor to maintain a fire therein whenever artificial heating is in use.

3. Instruct the janitor and the teachers to keep the outlet flues always open and clear.

4. Have the windows thoroughly cleaned, and instruct the janitor to clean them as often as is necessary.

5. Instruct teachers to use their best efforts to secure adequate illumination, especially by the intelligent management of the shades.

6. Allow no plants in the windows unless they can be placed there without appreciably reducing the illumination.

7. Seat pupils to secure optimal lighting; especially seat those with defective vision in the rows next the windows and bring myopic children into the front seats.

8. Rearrange the seating in 2d grade, Room 1, to bring the light from the left.

9. Insist that the janitor wash the closets and urinals daily with broom and hot water, and that at least twice a week some germicide be added to the water, *e. g.*, corrosive sublimate (1 to 2,000), or diluted muriatic acid might be employed for the urinals.

10. Install artificial lighting in each toilet room, so that at least enough light will be afforded to enable one to ensure the cleanliness of the appliances.

11. Arrange for the introduction of a supply of heat to each toilet room. For this purpose a warm air duct would be preferable to a steam coil, since the former would also assist in the ventilation of the rooms. In mild weather a number of inexpensive electric fans might be used to move the air in these rooms.

12. Install a fountain or 'jet' form of supply for drinking water and abolish the drinking cup.

13. Arrange some substitute for the present 'common towel.' The best suggestion is, perhaps, the use of a large number of small inexpensive drying cloths, like the individual towels used in Pullman cars.

14. Have the floors thoroughly renovated by systematic cleaning, scraping and crack-filling (if this is found feasible). During the vacation give the floors a good treatment with floor oil.

15. Insist that the janitor do no sweeping while school is in session, but that the entire building be swept daily after the afternoon session, be dusted daily before the morning session, and be washed weekly on Saturdays.

16. Place in each room a number (say 8 or 10, at most) of adjustable desks and see that teachers make proper use of them.

APPENDIX I

APPARATUS FOR THE DETERMINATION OF CARBON DIOXIDE

In his "Heating and Ventilating Buildings," Professor R. C. Carpenter gives the following description of the apparatus used in our tests.[1]

"The amount of carbon dioxide is so small that the most delicate methods are required in order to measure it. The writer gives here the only simple method which can be readily applied and which is said to be accurate to one part in one hundred thousand. This system of finding carbon dioxide was devised by Otto Pettersson and A. Palmqvist, two European chemists. The instrument consists of a measuring vessel, A, connected with a U-shaped burette, B, from which communication can be made by a small stop-cock, b, a manometer, fg, containing a graduated scale nearly horizontal; and two stop-cocks, f and g, by means of which communication can be made with the air. One side of the manometer, f, is in communication with the closed vessel, C, the other side can be put into communication with the measuring vessel, A. The burette, B, contains a saturated solution of caustic potash (KOH). The flask, E, contains mercury, and by raising it when the stop-cock, c, is open, the mercury will rise in the flask, A, and the air will be forced out. If the flask, E, be lowered, the mercury will flow from the measuring tube, and the amount of air entering A can be measured by the gradations. When the measuring tube, A, is full of air, the stop-cocks, c, b, f, and g being open, the position of the drop of liquid in the horizontal tube of the manometer is accurately read. The stop-cocks, c, b, f, and g are closed, that at b, opened, and the vessel, E, raised, driving the air out of the measuring tube, A, into the absorption burette, B. This operation of raising and lowering the flask, E, is repeated several times; it is then lowered, and the air is drawn over into the measuring burette; the cock, *a*, is then opened, and the vessel E manipulated until the reading on the horizontal scale agrees with that in the beginning of the test. The reading of the graduated tube A, gives directly the amount of carbon dioxide. The determinations are made with air of ordinary humidity and there is a slight correction due to this fact, which is not likely to equal, in any case, one part of carbon dioxide in one million parts of air."

A drop of water is kept on the surface of the mercury in the tube, *A*, in order to maintain the air to be measured at a uniform saturation. The liquid used in the manometer is petroleum colored with azobenzol.

In the tests made at the Central School a device suggested and constructed by Dr. A. W. Browne, of the Department of Chemistry of Cornell University, was used to draw samples of air from three different strata of the rooms. For this purpose a system of capillary tubes was attached to a rigid board made fast to the frame of the instrument. The three capillary tubes opened at points 30 inches (approximately on the breathing line), six feet and eight feet, six inches, respectively, from the floor. By means of the stop-cocks, air could be drawn at will from any one of these levels.

A trial cock was also introduced between the tubes and the instrument in such a manner that air could be drawn from any level into the instrument, then ejected through the tail cock. By performing this pumping operation several times, a fair sample was secured from the level under determination. In operation, two tests were made in succession from each level.

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[1] The lettering that follows refers to the cut of the instrument which has not been reproduced here.

APPENDIX II

CARBON DIOXIDE DETERMINATIONS

Inspection of the following table will show that the air of the Central School exceeds the permissible 8 parts per 10,000 of CO_2 in a very short time after the opening of the morning session, even in mild weather when one or more windows are open. Toward the end of the session the air is in obviously bad condition. The table also shows that the CO_2 is rapidly diffused throughout the room, since air drawn from three different levels and in two different 'stations' gives substantially the same results.

Table of Carbon Dioxide Determinations

(Parts per 10,000 parts of air.)

Room	Principal's	No. 3	No. 7	No. 8	No. 10	No. 11
Time	9.15–10.00	11.00–12.00	10.00–11.30	8.50–10.40	9.20–10.40	8.50–9.50
Date	Feb. 25	Mar. 3	Mar. 2	Mar. 1	Mar. 3	Feb. 26
a	10	14	10	9	19	7.5
	21	15	10	9.5	20.5	8.
b	22	15.5	10.5	10.	21.	8.
	23	15.	11.	10.	22.	9.
c	23.5	16.	12.	10.5	22.	9.
	24.	16.	11.	11.	23.	10.
d	24.	17.	11.5	11.	24.	10.5
	25.	17.	12.	12.	25.	10.5
e	26.	17.5	13.	10.5	25.	11.
	27.	18.	14.	11.	27.	11.
f	29.	18.	14.	12,	29.	12.
	29.	19.	14.5	12.	29.	11.5
Average	24.3	16.5	11.9	10.7	22.2	10.1

EXPLANATIONS AND REMARKS

a= stratum 30″ from floor near source of heat.
b= stratum 6′ from floor near source of heat.
c= stratum 8.5′ from floor near source of heat.
d= stratum 30″ from floor opposite source of heat.
e= stratum 6′ from floor opposite source of heat.
f= stratum 8.5′ from floor opposite source of heat.

The amount of window ventilation and *external* weather conditions during the tests are indicated as follows: the temperature is that registered by the U. S. Weather Bureau at 10 A. M., the relative humidity is that registered at 8 A. M., the only time when such determination is made during the day. The out-door relative humidity would, of course, be somewhat lower at 10 A. M.: the indoor relative humidity ranged from 20% to 30%.

(1) Principal's room: Feb. 25. External temperature, 22. Relative humidity, 71. Three windows open, and two doors open into the hall. Air in the room offensively bad, CO_2 found from 19 to 29, average 24.3.

(2) Room No. 3. March 3. External temperature, 22. Relative humidity, 66. Two windows partially open. 'School room odor' could be detected. Determinations 14 to 19, average, 16.5.

(3) Room No. 7. March 2. External temperature, 40. Relative humidity, 85. Two windows open at the top. Determinations showed 10 to 14.5 parts CO_2, average, 12.

(4) Room No. 8. March 1. External temperature, 27. Relative humidity, 75. Three windows open at the top. Determinations, 9 to 12: average, 10.7.

(5) Room No. 10. March 3. External conditions as in (2). One window open. Marked odor. Determinations, 19 to 29, average, 22.2.

(6) Room No. 11. Feb. 26. External temperature, 22. Relative humidity, 66. Five windows open, also door into cloak room. Determinations, 7.5 to 12, average 10.1.

APPENDIX III

APPARATUS FOR THE DETERMINATION OF RELATIVE HUMIDITY

For the determination of the relative humidity of the schoolroom air at the Central School, we employed a whirling hygrometer manufactured by the Johnson Electric Service Company. This instrument consists of a pair of accurate thermometers, mounted side by side, and attached to a handle which allows them to be whirled freely. The bulb of one thermometer is covered with a cloth which is dampened with water. The instrument is whirled until the two readings have settled to constant amounts. On the basis of the difference between the reading of the wet bulb and of the dry bulb thermometer as related to the dry bulb temperature, the relative humidity is determined by reference to special tables prepared for this purpose.

APPENDIX IV

APPARATUS FOR THE DETERMINATION OF AIR VELOCITY IN FLUES

We quote from Professor Carpenter's book as follows:

"The velocity of air is measured directly by an instrument called an anemometer. The anemometer used for this purpose consists of a series of flat vanes attached to an axis and a series of dials. The revolution of the axis causes motion of the hands in proportion to the velocity of the air. The dial mechanism can be started or stopped by a trip arranged conveniently for the operator."

PHYSICAL TRAINING

By G. Stanley Hall

The cultivation of mind and body belongs together and the highest development of each involves that of the other. This the world since Plato has known by heart, and I never heard or read of any one, save ascetics, who doubted it. Nevertheless, we now confront the new and grave danger of separating brain and brawn. Headworkers sit, ride in trams and autos, while the best muscled class of men are the most unskilled, ignorant, wage earning, day laborers who lack all interest in their work because it is for others. The boss does what thinking is necessary and they only obey like dumb driven oxen. Never was so much labor merely mechanical and sometimes so monotonous that a brainless automaton might do it and machinery will soon do it. In the good old times headwork and handwork went together, but now, one class specializes in hand and another in headwork.

We see to-day, alas! the beginnings of this same division of labor in athletics. The manager hires the player, schedules him, has him sign rules, and he is fined or laid off if he does not obey. A captain, coach, or trainer dictates diet, sleep, regimen and perhaps lays down the moral code, so that the modern gladiator's part is not to reason why, but to do or die, till his heyday fades and he sinks from the brief glory of being the hero of the bleachers to the long evening twilight of a has-been and it may be to grow fat and logy with only the consolation prize of his memories, perhaps allowing himself indulgences that were denied him in his days of servitude; for the average athlete past his prime and out of the game under our system has peculiar temptations and weaknesses.

Among the Greek athletes the very best thing gained was the splendid spirit of freedom which is the most precious result which any and every kind of physical culture can give. These fashion setters of our art canons learned self-control and did not have to work under the control of others. Their body training was only the preparation for the culture of philosophy (as in the case of Plato, or Aristotle, whose lectures were given to those who could keep up with him walking),

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[1] An Address given before the Physical Education Section of the N. E. A., July, 1910.

or it was introduction to the arts of the Muses. Milo acquired his strength because he had the wit to devise and the vigor to carry out all by himself a unique original system of training. Hercules waxed strong by performing great and useful public works for the benefit of the community.

Now, a brainy athlete will always best train himself by following an inner monitor which is always whispering to him "more," "enough," or "too much," and guides his regimen like the still small voice of conscience. Now, it is precisely this inner oracle, which is the Holy Spirit of physical training, that the coach or trainer stifles. He robs the athlete of the very best lessons of his discipline, viz., bodily self-guidance, the attainment of a physiological majority which comes with competence to care for one's bodily self. The supreme problem of the academic athlete is to solve his own personal hygienic problem, which is always and for every one an original investigation on which his success or failure in life will largely depend. His problem is how to get the very most and best out of his own physique. To this end, he must carefully observe himself in rest, in fatigue, when full or hungry, when growing lean or fat, and learn the great lesson of being the steward of his own body, developing power to resist sloth and appetite or overtraining in himself. This alone can give him true self knowledge and self control. At the very most, he should be only allowed access, when in doubt, to a medical advisor, who might now and then help him towards solving the problems that in the last analysis must always be his own. By this method, the physical improvement gained by training would not be lost; for a gain would be only a stimulus to a permanent higher plane of vitality and effectiveness. This would be a far harder but more acceptable offering to lay upon the great altar the world is now rearing to the sublime goddess Hygeia than mere beefiness, spurtiness, or a whole cabinet of trophies.

Most of us habitually live at about 60, 70, or perhaps 80 per cent. of our maximal health and strength. The athlete should get up to and stay at 90 or 100 per cent. of his best possible condition. Some invalids carry a handicap of weakness or perhaps chronic illness that would wear them down to an early grave did they not develop a veritable genius for personal hygiene, experimenting with and observing themselves, profiting by and treasuring every lesson of experience till they find their way to a code of regimen that would fit no one else, but does fit them so perfectly that they perhaps live on to a good old age like Kant and get an amazing quantity of work out of perhaps rather frail bodies. At the age of fifty or sixty, every intelligent man is either the best and most philosophical physician to himself for all but acute diseases or accident or else he is an invalid. Now, the ideal athlete does this same thing only higher up among the altitudes on the scale of health. The studies of Irving Fisher seem to show that man could live on the average about fifteen years longer than he does by conforming to all the known laws of individual and social hygiene. Just so, he might live his life out fifteen per cent. higher up on the scale of health and efficiency; but to do so, he must become an expert, a professor in the art of keeping himself well. Others may suggest, inform and help in emergencies, but everybody's health problem is at root and core essentially his own. Here he must make original investigations and profit by them. To make a few weeks excursion up into the higher levels of health by special training and then to lapse back to lower levels, or to fall from grace, and to repeat this every athletic season for the college quadrennium, is of very doubtful value. The true athlete ought to be an aristocrat of health both born and bred, and the best test of success at the end of his college course would be not his records in field or track, his strength tests, his medals, cups and pennants, but what he could put down as having learned about how to keep to the very tip top of his condition, and he ought to be able to do this better than any other to the very end of his life.

Thus we may see that the average coach with his little kit of rules and his brief authority is to-day the chief enemy of athletic intelligence, if not indeed its stultifier and debaucher. He is as far from being truly professional as a cyclone revivalist is from being a professor of theology, or as a church debt-lifter is from an academic chair of finance.

My second point is that the college and high school faculties and athletic committees have been pedagogically both stupid and wasteful in their methods of dealing with athletics. They have been absorbed in the efforts to regulate from without when they should have utilized this enthusiasm for intellectual and moral culture. They have made no serious attempt to connect this zest with the highest culture as the ancient Greeks did and the modern Turners do to-day. The history of physical training and athletics is one of the most splendid in the annals of the race and is replete throughout with the purest and noblest humanism. The very descriptions of the great Pan-Hellenic games, where the victors received honors almost divine and whom sculptors and poets like Praxiteles and Pindar devoted their lives to immortalizing; the story of Jahn and the noble, political, patriotic enthusiasm for the fatherland which he and his followers developed—these bright historical pages abound in incidents that should glow again in the heart of every athlete, where they would tend to sublimate muscular into moral power. Toward present day contests neither our psychologists, literary men, physiologists, physicians, moralists have done their duty; for this is not discharged by joining the rooting throng. Not reporters, but academic professors devoted to feeding these interests, long circuiting them on a higher plane, bringing to bear the vast and precious repertory of facts and lessons which could be absorbed—these are what are now needed. The great body of experimental data on the effects of practical training, use, disuse, fatigue, rest and every hygienic and dietary research in our laboratories that sheds light upon the muscle and nerve culture should be collated. One single spark of pedagogic genius here just now, to correlate all this material, kindle it and bring it into vital touch with the restless, aimless, surging, athletic calentures, would at once make a new situation everywhere in this field. What is there in this domain that these noble youths so eager for health and strength and victory must know and need to know? How shall we order it? Condense it, put it to fit their quick and eager, if undiscursive and unscholastic and impatient minds? This is the question that now groans and travails for answer through every gymnasium and in every athletic field and it is not creditable to our faculties that it is still unsolved. The data are so copious, so meaty, so pragmatic, but alas, still so scattered and ineffective! Such a compend as I am demanding would be a veritable Bible for athletes. It would instill honor, temperance, the simple life, the spirit of loyalty to larger wholes even than the alma mater. It would at the same time make training a fine art resting on a good body of science behind it. Young men are perhaps more easily inspired by a high spirit of honor than by any other of the great uplifting sentiments, and men in training are particularly susceptible to this education of the heart. All this the trainer kills, teaching only to win at any price. The literature of war and of chivalry itself affords no more brilliant instances of self-denial and self-sacrifice, of true heroism, of magnanimity to foes and the vanquished, of the gentlemanly great arts of self-imposed, personal virtue and chastity, for the greater glory of the larger group than can be found here, so that ethics could find here florid and glowing illustrations for about every virtue it teaches.

The ideal academic athlete, as I conceive him, ought by every token of psychophysic parallelism or interaction to be or to make himself just as much superior to the average in soul as he is in body, for otherwise he is more or less lopsided and monstrous. Magnanimity belongs with size and grasp of intellect, with strength and mental with physical agility, endurance, grace, etc. The culture of each should keep pace with that of the other. Christologists, reacting from the old ascetic ideals, are beginning to conceive of Jesus as a man of great size, strength, power of sustained endeavor, as majesterial, magnetic and virile in his personality, as divine in his physique as in his psyche. They thus find belief in his mighty works far easier than when he was deemed feminine or a weakling, or a man of insignificant size or ugly form. So my ideal college athletes should be fit for artists' models, thoroughbred gentlemen, and should have what naturally belongs with this, a higher code of honor. Perhaps the time is nearer than we think when they will indeed found a new order of nobility with its own *esprit de corps*, its own *noblesse oblige*, etc. Who knows but in the near future of eugenics they may be progenitors of a higher type of man than the world has yet seen and take a unique and distinct step forward toward the kingdom of the superman? If Galton's dream of endowed wedlock and pensioned children of all the fit ever be realized, men like these ought to enter the contest for the first prize in this field; for those thus especially endowed by nature and nurture, eminent by heredity and training, have special duties to posterity, of whose interests they ought to be in a peculiar sense the guardians and promoters. To the strongest as to the bravest belong the fairest by nature's great law of affinity. These men should be nature's noblemen and their conduct ought to be ideal. They should set fashions in bearing, in deportment, be the true aristocrats in a republic where personality, character and merit should set copy for human behavior.

It is up to our faculties thus to sublimate physical into psychic excellence, to transmute crude physiological ore into the gold of character, to see to it that strength does not lapse to brutality, animality, or sensuality, to feel themselves charged with the responsibility that fitness for physical conflicts is only a propadeutic for fitting them to be winners in moral battles later, to turn the courage and prowess won on the athletic field against sin, corruption and ignorance, for the great victories of our age are won not by muscular but by moral stalwartness and aggressiveness.

This is indeed the very central and quintessential thing in education, and to say that we cannot do this is to confess that we do not know how truly to educate. Let us rather say with the greatest of modern ethical teachers that we *can* because we *must*, for duty is never impossible. It is hard, yes, but let us professors take courage and catch inspiration from our young barbarians at play and go into training for this great and difficult task.

Could not this section of this meeting select a committee to gather the resources from all the above sources and work out a culture curriculum of these things from the past to the present, from the fields of history, hygiene, ethics, eugenics and the rest that athletic interests crave and need, to the end of giving to the word *gymnasium* more of the meaning it had in Greece and Germany, and to reform athletics by beginning within the heart and mind of the athletes themselves, thus striving to open it a highway which nature intended to be always broad and well travelled, but which is now grown up and jungled, the way by which excellence of physique passes into that of psyche.

THE NATIONAL CHILD WELFARE CONFERENCE: ITS WORK AND ITS RELATIONS TO CHILD STUDY[1]

By G. Stanley Hall

Child study has now so many departments, medical, hygienic, criminological, legal, religious, pedagogic, linguistic, social and the rest and its literature is so vast, the academic chairs and journals and sciences devoted to it are so numerous that no one can master all its fields. Specialization is already well advanced. It has a great and growing influence upon education and the list of reforms in method, matter, buildings, hour plans, text-books and ideals that now stand to its credit, is a long and noble one. Indeed, it is not too much to-day, to say that in every educational problem he who tells us authoritatively what the nature of the child requires, speaks the final word. Nothing in the history of education has contributed so much to make teaching professional and scientific. Profound as all this influence has been, it has been from the start silent and spontaneous. Now, however, we are organizing a more active and aggressive campaign to extend the application of its results and its influence outside the school proper to the thousands of child welfare institutions which we have tried to classify into 90 species, of which the following ten are the genera, viz., institutions for defectives, delinquents, dependents, those that deal with health and disease, morals and religion, protection, recreation, sex, eugenics, and general. Our Child Welfare Conference which just held its second annual five day meeting aims to unite all these into a national organization in order to secure the same advantages of co-operation, avoidance of duplication, the closing of gaps, enhanced efficiency, etc., as the Associated Charities have gained by co-ordinating local relief work. Our programme is first local, to bring all child welfare agencies outside the school in each city together so that they may know each other's work, catch each other's spirit, profit by each other's experience and impress the community more strongly. We wish then to effect a state, and last of all, a national organization, or organizations, with perhaps a head or a central bureau at Washington, for the conservation of American childhood which is the most precious of all our national resources and indeed of all earthly treasures. This federal bureau ought ultimately to be represented in the President's Cabinet and rank with the departments of state, agriculture, the navy and the rest and should eventually include education as well as all the agencies connected with child labor, hygiene, relief, delinquency, juvenile courts and all the other scores of organized interests of the rising generation always including eugenics. The practical ends aimed at are the following.

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[1] Address given before the Child Study Section of the N. E. A., July, 1910.

First, every social worker and every head of every institution caring for dependent children and their helpers should have special training for their work. Child philanthropists, too, need to know children better and draw upon all this fund of paidology. The work of all these institutions could be better done and every dollar contributed by patrons would have enhanced value by training of this sort. There are no more devoted friends of children than they, but to the high virtue that prompts their work they should now add a science for the sake of the children, not to mention their own interests.

Second, from one to three per cent. of the children of the land, hundreds of thousands in number. who are defective, dependent or delinquent should be studied. We now spend nearly $100,000,000 yearly upon classes of the population, old and young, that are a fearful drag upon the advancement of civilization. If a new pestilence were to break out that did damage of this magnitude, we should turn every available agency to the work of investigating causes and cures and should not be content with merely ameliorating present conditions. This vast field of observation is now very inadequately utilized for the permanent lightening of this heavy national burden. Experts in every such institution should work together systematically to draw lessons from this field so ripe in harvest and where the scientific wastage is too incalculable. The end should be prevention even more than cure. Every child publicly cared for should be systematically tested, its hereditary and personal history laid under tribute for the good of others and for that of science. This work, too, is already well begun in certain favored localities.

Third, in every institution for the training of teachers, some special course should be given to inform them in order that they may get and keep in touch with every child welfare agency outside the school in their community. We urge, too, that all upper grade pupils be informed of the work for dependent, delinquent and defective classes in their community as part of their education for citizenship and also that every teacher of child study and every pedagogical department in normal schools, colleges and universities conduct extension work and make systematic surveys of all child helping agencies about them with the double purpose to learn and to help. We have found it profitable to assign topics in this field for thesis work and also to organize a series of committees of citizens to advance local playgrounds, promote better probation work, improve the milk supply for babies during the fatal hot months, to promote school gardens, training for workers on dependency and neglect, school hygiene, theatres, festivals, recreations, etc. It is to this great and new task to which we students of children are now applying ourselves that we invite your good will and if possible, your active cooperation in your several fields of labor. We believe the time has come to unite on the one hand all experts in paidology and practical agencies, to put to work what we know and to utilize children aided in every way for our science which now has so much to say not only on juvenile vice and crime and pediatrics, on nursing, feeding and dress of infants and children, their contagious diseases, games, habituations, vocations, social activities, adolescence, the psychology of poverty, criminal legislation, the child's relation to nature and to the city, on arrested development, truancy, gymnasia, bathing, prostitution, story telling, but even has something new and great to say concerning wedlock and race suicide. So our third slogan is—teach this applied child study everywhere from the high grammar grades up, put it to work for the charities, as college and university extension work.

Let me now tab off a few of the specific contributions which the larger child study has made toward better knowledge and treatment of some of these classes, although each of the following points needs a chapter or an hour.

I. No one is qualified to deal with boys in groups who does not know and has not pondered the studies of the gang which consist of the unique and integral part of genetic social psychology. This, the judge of the juvenile court, the probation and truant officers, heads of boys' clubs, or adult improved or controlled organizations of boys for religious of moral and other ends and those interested in school and self-government should know by heart. A large fraction of all juvenile delinquencies is due to the gang spirit which is of course that of the savage tribe. The reformer here has succeeded in proportion as he knows enough to become a true member and leader of the gang, for even such organizations as the Junior Endeavorers, Knights of King Arthur, etc., are in boy language, members of God's gang, or of the church gang. Gang psychology is the master key to juvenile crime.

II. Purity workers of all kinds must know the genetic psychology of sex or they can never cope with the gigantic evil of vice of which this is the key. Would that I had time to point out the positive injury done by well-meaning ignorance here, the harm done by those who strive to help. Nowhere have our ideas undergone such sudden enlargement and transformation in recent years as in this domain concerning the age of greatest danger, the predisposing and active causes, modes of cure, the nature and consequences of error, etc. We can now detect several of the roots of sex aberration in the infant in arms and a group of others in the child before school age. We know, thanks to the Freud school, the peculiar and hitherto unsuspected vulnerability of the years from eight to ten. We can appreciate the great significance of physiological aids. We know from special studies something of the magnitude of this generally hidden evil in school and college, and our ideas of self-abuse and of gonorrhea have undergone great change, while the effects of the social evil and the methods of moral prophylaxis are now revealed in a new light. Here lie the roots of nearly all the psychoses of later life and of many of the elements that Emmanuelists and mind curists have reached. The time is at hand when these topics and eugenics will be taught in the schools, but here, if anywhere, every worker must have special training and should bear a certificate before being permitted to enter this field.

III. The nature of the transforming era of adolescence, as it is now understood, is changing our ideas and methods of education at this age in home, school and church and in all special and private institutions for exceptional youth. Over the door of every such institution should be written—Let him or her who knows not the laws and facts of adolescence enter here. It is in many respects the most plastic and vulnerable of all ages, easiest helped by those who know it and easiest harmed by those who know it not. How harmful the moral or physical trainer, or the Sunday School teacher of youth who does not understand it and what a blessing are those true shepherds who can penetrate to the secret soul of the budding girl or the boy in the awkward age?

IV. At least one per cent. or some 170,000 American children of school age are subnormal or in some way arrested, although only a small per cent. of these come into institutions. I need only refer to the clinical work for this class lately done by Wittmer at Philadelphia, Goddard at Vineland, Healey and Macmillan at Chicago, Chase and O'Connor at Clark, and others in this country. Their achievements constitute one of the most brilliant chapters of psychology applied with the most beneficial practical results. Here we have an almost ideal relation. These children are being studied more thoroughly than any other class ever were and they are adding much to our knowledge so that they are at the same time material for research and are being helped themselves by being segregated in special classes or schools and given the special care they need. Standards of ability, physical and mental, are being established for each age, on which we can grade subnormality, and a wealth of data for heredity is also being slowly accumulated. Thus, it is no longer sufficient to herd and care for these unfortunates. Each such child is a class by himself and must be specifically studied by the expert methods now being evolved, and nowhere has pedagogic genius and inventiveness accomplished better results.

V. Again, take playgrounds, games and toys. How grossly ignorant and negligent we were a few years ago until various studies of childhood showed that in play, children both practise and train themselves for future vocations and what is still more important, are rehearsing many, if not most, of the practical activities and vocations of the race through its ancient phyletic history! So, in right play-teaching we are working in the very depths and not in the shallows of the soul. Thus we woke up to the fact that many city children do not know half a dozen of the scores or hundreds of plays and games they should and had no place to play in. We realized that if the boy without a playground did not make the man without the job, he was at any rate dwarfed and distorted, if not a half evolved being. The present magnificent playground movement is a direct product of the better knowledge of the nature and needs of the child. With what we are now learning of the psychology of toys, it is easy to predict a new dispensation impending in this field when play material shall come to its rights.

VI. The work of the Story Tellers League, library and other story telling represent a contemporary revival of the antique method of education which was universal, for once all education was story telling. Here pedagogical psychology has much to teach that would render this work more effective and intelligent concerning not only the history of the art from the Homeridæ down, the nature of tradition, the advantages of oral and ear over the later long-circuited tract of the eye that reads and the hand that writes, but its best and surest teachings concerning the nature of the story material and the kind of tale that knits up the very brain itself into a better organized unity. Concerning the most vital point of matter, the modern story teller is usually singularly and pathetically astray. While children do not want a tale with a too direct or obvious moral, every story should bear essentially upon conduct and form sentiment. It should be an instrument and every story teller should be able to stand and answer what he expects to do and to accomplish with each tale. The school canon of stories should include only the best classics, standard which introduce the child into the very best things in Greek, mediæval and other material which have shaped the masterpieces of literature, the tales of Troy, of the Greek dramatists, of Reynard the Fox and animal legends, the Niebelungen and Arthuriad groups, the Wandering Jew, Bible, some of Shakespere, etc. Story tellers are too prone to strive for entertainment only and the content to amuse and have little idea of real edification or even what it means and here the natural corrective lies in the history of their art and in the better knowledge of the nature of childhood. Until this reform is effected, story telling will never take the place it deserves in our educational system.

VII. The Big Brother Movement is in great need of pedagogic psychogenetic explication. Its history and its motivation date back to Plato who held that it was a shame to any boy not to have an older mentor, hero inspirer and that it was a disgrace to a young man not to make himself a special ideal or spiritual father of a younger boy. This principle has a long history from the apprenticeship to the fatherland to apprenticeship to a trade. It has other outcrops in a system of the personal advisers lately in use in many high schools and colleges of this country, in the ancient method of fagging, in initiation, in the control and hazing of freshmen and all the manifold monitorial care of younger by older children and youth. Indeed, this is one of the ideal types of friendship and prompts the mentor to always be at his best as a pattern-setter to his ward. As a godfather or guardian, or quasi or supplementary parent to younger men or women, older youth are themselves given great and new reinforcements to mental and moral progress.

VIII. At the opposite extreme, we have the psychology of orphans which shows what fatherhood and motherhood mean by their loss, and here belong sad lessons of parental cruelty and abuse, also the effects of disharmony between the parents and divorce, also the effects of institutionalization compared with the placing out system. Defective parenthood has many outcrops from inability and unwillingness to nurse which is absolutely necessary to complete motherhood and the failure to do which always involves one or more parental defects to the problem of the duties of unwed mothers toward their children and the problem of foundling asylums with their fearful mortality. Shall we rehabilitate these unfortunate mothers at the expense of their children, or shall we teach them to face the shame, retain their children and develop them and themselves? Shall our agency content itself with trying to secure marriage or support from the fathers? Upon all these problems genetic psychology has distinct new light to shed which will make every agency here more effective.

This list of things genetic psychology is now able and willing to do for child workers might be considerably extended were there time and this survey is of course extremely inadequate.

But let me in closing turn yet more briefly and glance at the challenging questions now put up to the psychologist by the practical workers in fields where we have more to learn from them than to teach them, to some of which problems we are still, though not to our credit, rather dumb. Here it behooves us to listen, ponder, go to work and feel ourselves put on our mettle and more or less at fault till we can say some authoritative word. For instance, how shall we treat young children in reformatories who have gone wrong and are so prone to relapse to vice as soon as they get out? Our present methods are inadequate and radical reconstructions are now needed for this very unique class to whose nature and needs we can reason from another class. We want to make these studies and to send our experts to these institutions. Again how shall we balance up the pros and cons between these who would raise the age of consent and those who deem it already in many places too high? Once more, child labor has its advantages as well as its abuses. How shall we foot up this account for different industries, ages, communities, social classes, etc.? Again, what shall we do for high grade imbecile girls who can just support themselves outside institutions but are prone to be the victims of scoundrels and mothers of human spawn of degenerates? Shall we keep them always sequestered or tubo-ligature them and let them loose, or what? And the same in modified terms for young male imbeciles of this grade. Again, how can we reconstruct the juvenile court, the success of which has at present organized seems now hanging in the balance, for it is in most places too much like an adult tribunal with sworn witnesses, publicity, jury, habeas corpus, appeal, when it should be based on pure equity principles and so organized that it can work well as a system and is still dependent on the personality of the judge who of course ought to be an ideal father for all the delinquent boys in his bailiwick, although this requires a supply of genius which we cannot rely upon. Again, how can we eliminate the evils of the placing out system which has spread so fast and far that, although statistical data concerning its success are lacking we are beginning to hear serious reports of its evils in the way of spreading moral infection and of manifold bad relations between adopted and natural children? What are the facts about the appalling mortality and morbidity of foundling asylums and how can these be reduced? How can we extend the educative influence of moving pictures which have greater pedagogic possibilities than any invention since printing and how can we reduce the present dangers to eyes and morals? Such questions are legion and I must close. Here child psychology has a vast and to a great extent newly opened field for applying what it knows and for learning more, and here all child helpers can greatly increase the intelligence and the efficacy of their work by coming in contact with the rich store of facts and principles for which this section stands and which we in a sense hold in trust as its custodians. Here we must have a new and vital bond between knowing and doing, for the two in many fields are yet sadly isolated. The National Child Welfare Conference is a forum where genetic psychologists work for the exceptional child, get together and put mutual questions, report results and pool their knowledge for mutual benefit. Our motto always is that the cause of the child is the most precious of all the world's causes because it controls the future.

A BOY'S EXPOSITION

By J. E. W. Wallin
The New Jersey State Village for Epileptics at Skillman

A local boy's exposition was held in the Grays' Armory, in Cleveland, Ohio, April 29 and 30th. Over 2,000 exhibits were on display, and were viewed by about 6,000 visitors. The exposition represents the outgrowth of similar earlier attempts upon a small scale by boys belonging to various clubs and associations in the city, and proved so successful that plans are already being made to repeat it upon a still larger scale next year during an entire week. Any boy in the city less than nineteen years of age was eligible to partake, after procuring a certificate at a nominal fee of ten cents. The exposition comprised five divisions.

The first division was devoted to *industry*, and included exhibits in carpentry, wood turning and carving, metal work and forging, electrical apparatus, mechanical, architectural and marine drawings, printing, and arts and crafts. No less than eighteen sets of wireless telegraph instruments, all the result of juvenile workmanship and ingenuity, were on exhibition, and the boy inventors were on hand to give demonstrations of the superior qualities of their apparatus. A "wizard designer," constructed by a boy of thirteen, was capable of making 140 different designs, and was a great help to the inventor in his school work in drawing. A wireless station, fashioned after four months of labor by a sixteen-year-old boy, demonstrated the inventive genius of the juvenile mind by transmitting the message: "The Cleveland Boys' Exposition, Long May it Live." In this department aeroplanes of various types were in evidence, as well as ice-boats, lamps, yachts, motor cycles, book, tie, cup and saucer, and coat racks, broom holders, sleeve boards, tables, stools, Dutch dolls, picture frames, amber carving, burnt wood, burnt plaque, hammered brass, a model house, a wooden chain six inches long whittled out of a solid block of wood, an influence machine, etc., etc.

The division of *art* consisted of oil, water color and china painting, clay and putty modeling, charcoal and ink drawing, posters, cartoons, and photography. Some of the cartoons and posters on exhibition would reflect credit on many of our veteran newspaper cartoonists and ad writers. One of the prize cartoons was "Roosevelt Returning." Other cartoons represented the poor man prostrate at the foot of his modern overlord (the trust), local politicians and baseball players, etc.

In the division of *collections* were shown stamps, coins, mounted buttons, and natural history specimens; and in the division of *pets*, ponies, dogs, rabbits, guinea pigs, parrots, and pigeons. Among these pets could be seen Buff Pekin, Golden Seabright, Yellow Pile, black, red and gray Duck Wing bantams, Belgian hares, black, yellow, red and white dragoon pigeons, homer pigeons, poodles, setters and terriers of various breeds.

Finally a series of *contests* added zest to the fair. Competitive tests, eligibility to which was often determined by preliminary competitions, were conducted in music, literature, oratory, costuming and gymnastics. In the musical contests there were 160 entries. The contests covered solo and duet piano work, cornet and violin playing, playing a violin made out of a cigar box and broomstick, whistling solos, glee club and orchestra work. In the oratorical contest there were nine entrants, three of whom were selected in preliminary trials. The ranking was determined by the manner of delivery, platform appearance, and ease and effectiveness as a public speaker. Scores of manuscripts were received in the short story contest. The stories were limited to 1,000 words, and only original contributions were accepted. The gymnastic contests were participated in by boys from a boys' club of the Y. M. C. A., from the Socialer Turnverein and the Council Educational Alliance, and a typewriter contest included both students' and amateur divisions. An Indian wigwam, cowboys with lariats, and Indians in warpaint, and a circus ring, added a circus aspect to the exposition.

Three grades of prizes were awarded the winners of the honors in the contests as well as in the exhibits, namely: blue, red and white ribbons, with the grade of the prize and the official seal embossed in gold. These were designed by a sixteen-year-old boy.

Such in brief outline was this exposition, arranged for, and participated in, by boys—an event that deserves to be chronicled because it represents, I believe, one of the first, if not actually the first, expositions of the sort on record. Fifteen or twenty years ago it was not unusual for the public schools of our smaller towns and villages to arrange somewhat similar exhibitions for all the grades at the end of the school year, but the practice has fallen into desuetude, save for the displays on a small scale which are now so common in large and small school systems in the special fields of the school arts: writing, drawing, manual training, domestic science, raffia and kindergarten work, etc.; and save for the specially selected and ultra-superlative school displays sent to state and national fairs and expositions. Yet in this day of the urbanization and centralization of our population in industrial centres there is need of a mechanism to help restore those conditions which prevailed when, under primitive rural conditions, the family was the economic unit, the centre of productive labor and inventive enterprise, in which all its members were co-operating forces. The child under those conditions was of service in the home; the boy got his manual training in the family woodpile, his carpentry in the barnyard, his iron work in the repair house; and the girl received her domestic science in the family kitchen, at the family work basket and sewing machine. The child was an economic asset under those conditions, and a portion of his leisure moments was, therefore, turned to productive account. Modern industrialism has changed all this for the city child. The factory has supplemented the home as the productive and economic centre, in consequence of which the supplies of the home are now made by specialized labor in specialized centres of production instead of in the home. Accordingly the services of the child are no longer in demand in the industrialized home of to-day. He must now get the training which the home formerly supplied in the schools in manual training, domestic science and such courses, or do without this training before he takes his place in the factory. The child of the city needs to be socialized in these basic occupational activities of his fathers, of which he has been robbed by our modern system of industrialism. And he needs to be individuated for the higher creative work of the world as only he can become individuated by participation in productive and creative activities while he is yet in the enjoyment of the plasticity and spontaneous creativeness of youth.

A children's exposition, for all the girls and boys of an entire city, irrespective of school, club, church or other affiliations, will prove a boon to the modern child, relieving the child of some of the natural handicaps that inhere in our present economic system, and diverting many misdirected juvenile efforts into channels of valuable creative achievement. To interest boys and girls in laudable enterprises which appeal to the youthful imagination, to induce them to set to work upon some form of creative work, will often be tantamount to rescuing them from lives of aimless drifting, idleness, slumming, and the frequenting of the various questionable "hangouts" and resorts which everywhere abound, and which all too frequently supply just the conditions which have given us an army of child wrecks and made the juvenile court an indispensable part of the city government. These expositions should prove a powerful stimulus to inventive effort and productive accomplishment during the years of life when the mind is most impressionable, and when the modifications wrought in the cortical neurones will leave the most permanent traces and promise the richest rewards in subsequent years. A visit to the exposition will reveal unsuspected possibilities and latent powers, or fire the ambition of many a child to put forth his or her best efforts in a healthy desire to excel in the useful arts and crafts, or in some object or contrivance which will be able to attract attention and commendation because it embodies a vital idea or fulfills some felt need in the environment. These youthful creations will thus form a natural transition to the type of work which the child must do in the adult environment. The child will learn early in life that work to bring reward must eventuate in products which supply some felt need, which possess some intrinsic value. An attitude of mind is thus engendered which will prove of priceless value later, and a specialized skill by which to meet life situations is being developed by practice, albeit playful and amateurish, in fields which have identical elements with the diversified industries, arts and professions of later life. The child is getting surely introduced into the adult occupations and standards by child creations whose pertinency and intrinsic merit will be gaged by the standards of competitive contest.

At the same time, the youth is directing attention to his own world, his own ideas, interests and desires. He is inviting the attention of the adult world to an exposition of his own making, which he has striven to make of such a character that he need offer no apology in bidding for adult patronage. He will come to realize that youth is not a vacuum which nature has ruthlessly thrust between infancy and adulthood, barren of accomplishment, or a period for the sowing of wild oats, but the spring time in which must germinate the ripened fruits of the autumn of life. It will be a gain to disabuse the adult mind that the only expositions that have a place in modern life are those made by adults for adults. It will be a gain for civilization to encourage the children's exposition idea, by focusing the attention of the child and the adult upon the juvenile world of achievement as a source of independent values. It will be especially fortunate to provide a vital stimulus to the inventive genius of girls, which has been rather barren of results in the past but which will probably flourish under proper stimulation. The public schools have already done much in the past to stimulate spontaneous effort, initiative, and invention on the part of the child through the institution of exhibitions in the school arts and crafts. The children's exposition should do for the city at large upon a more pretentious scale what the schools, the distinctive institution for children, have done in their restricted spheres.

TAKING A DARE

By Genevieve Boland

The expression "I dare you" is one frequently heard among children between the ages of eight and fifteen, particularly among boys. What child does not remember the stinging rebuke and incentive to action found in the expression, "You 're afraid, I dare you to do it!" The fear of being called a coward and the endeavor to stand on a footing of equality with one's companions have led at times to danger and accidents. Young children do not fully understand the meaning of the expression and without being cognizant of any danger involved take a dare, fear of others and the attempt to imitate leading them on. Older children are aware of the physical or moral harm, but pride and fear conquer them. The quality of being very daring is considered by boys, and frequently by girls, a commendable one. A girl of eighteen writes: "I have always been fond of taking dares and am yet. When I was about eleven years old, my teacher told me that I was the most daring scholar in the room. It has often gotten me into serious trouble, but strange to say it never had much effect upon me. When I was quite small I always thought a person who would n't take a dare was a coward, and years ago I made a resolution never to be one and have kept it pretty well." Again, a boy of sixteen says, "When I was between six and nine there was nothing I enjoyed more than taking a dare or daring others."

Terman found in his study of the psychology and pedagogy of leadership that among other things leaders were noted for being more daring. In Dr. Hall and Dr. Smith's study of taking a dare it is adjudged to be a dangerous and perverted form of the showing-off instinct. The motivating impulse seemed to be not a real exhibition of courage even of the physical sort, but a desire to avoid the accusation of cowardice. Where no apparent danger is involved the taking of a dare seems to be an avenue for the outpouring of some of the restless energy of childhood. It, indeed, at times becomes a mode of play in which a desire for excitement may be gratified, as in jumping from a haymow, but the effect and influence are in the wrong direction as the fear of being called a coward may rankle in the child's mind often causing him to do that which he knows is not right.

The impulse to motor activity, always the predominating factor in taking a dare, is always accompanied by possible physical danger, moral physical harm being seldom considered, while pride in one's standing among one's mates runs through all acts and all ages. For this reason the boy of five will take a dare as quickly as the boy of ten or twelve.

The data from which this study was made were received from Miss Williams of the New Jersey Normal School. In all 191 cases, 38 of boys, 153 of girls, were reported. As only about one-fifth of the cases were from boys, a comparison can hardly be drawn as to whether boys or girls are the more daring. In walking in deep water, skating on thin ice or ice covered with water, eating such things as mud pies, green apples, raw potatoes, in jumping from haymows, ladders, beams, etc., the girls as well as the boys are led to take the dare.

The age of ten is the time when dare-taking, according to this material, reaches its climax. It starts at four, goes up with a sudden bound at six, continuing to rise until eight with the girls. Then the curves for both boys and girls drop at nine, then take a leap at ten, immediately falling back almost to the level at nine and then steadily decreasing with a slight upward curve for the girls at fourteen and the boys at sixteen. At eighteen there is a slight upward curve for the girls and at twenty for the boys. Adult cases were reported, one of a man of twenty-two who was dared to wear his father's panama hat and carry his cane to a concert; the other of a man of thirty-eight who, dared by his niece, ran across the railroad tracks before an approaching train. The same desire not to be thought cowardly is evident in both, although the latter case shows a weak character. I presume we may say, certainly in the latter case, if not in the former, "*cherchez la femme.*"

Dares may be roughly classified as of three sorts, physical, moral and social; or as those which may result in personal danger; those which may court danger or ill feeling from others, and those involving ridicule. Some dares may be included under two of these heads and some under all three, one being predominant, the other two secondary consequences. The fear of physical ill, or of ridicule, or of being thought weak and cowardly, are restraints continuously set at defiance.

(1) Of the dares involving physical danger jumping is the most prominent. Anything from the front steps of a porch to the second story of a mill, even from a bridge into the water below served as an outlet for bringing into play this desire for activity. The instinct to climb and then jump is given vent in climbing trees and jumping, climbing beams and jumping into the hay. Older children perform the feat and then

dare the younger to try the same; boys find particular pleasure in daring the girls to imitate their supposed courage and bravery. From six up to sixteen jumping dares are frequently taken, and especially at the ages of six and eight. The following are some of the typical cases.

F. (6). When I was about 5 yrs, old my brother dared me to jump from the porch to the ground, which was a considerable distance. This I was very much afraid to do but finally I gathered up the courage and jumped.

F. (8). When I was 8 I was once dared to jump off the church steps. The little girl told me she double dared me which meant she would do it after me. I did not want to seem babyish, so did it, not only once but three or four times in succession.

M. (10). Frank was dared to climb to the top of an electric pole. He got half way up and then came down again.

F. (7). When I was about 7 years old I remember how two of my playmates and myself used to dare each other to jump off a little house about 4 ft. high.

F. (11). Clara, aged 11 years, was dared to climb a tree and jump down. She did it and sprained her wrist. After that she refused all dares.

F. (12). When I was about 12 years old a boy who lived near us dared me to climb a shed roof and jump from it. I did it and fell on my wrist and sprained it very badly.

M. (12). One day a crowd of boys and girls were in the barn when some one suggested jumping out of the hay loft. One of the boys jumped, but I was afraid. Then one of the girls jumped out and when she landed, dared me to follow. I jumped simply because I did not want to be beaten by a girl.

M. (12). One day I was swimming in the canal near a small foot bridge which was, perhaps, 15 ft. above the water. One of the boys dared me to dive from the bridge, but I was afraid to do it. He then dared me to jump from the bridge. I hesitated, but finally said if one of the other boys would jump I would. The other boy jumped and I was still afraid. I stood there for a moment, shut my eyes and jumped. The only feeling I remember is that the longer I stood looking the greater seemed the distance.

F. (9) When I was perhaps 8 or 9, a favorite game was to dare a crowd to jump from a wall. We tried to see who could jump from the highest part of the wall.

M. (16). One day at the close of work a fellow workman dared me to go to the bridge and jump into the water with my clothes on. I accepted the dare and jumped with him.

This instinct of climbing and jumping, which begins early, is thought by some to date back to our early ancestors who climbed the trees and leaped from limb to limb. However this may be, it seems to be deep-rooted and fundamental. And the desire not to be outdone becomes more prominent the older the boy or girl.

(2) As jumping from a height involves personal danger, so also does walking in the water and skating on thin ice. To walk through mud puddles, especially with shoes and stockings on, seems to be quite daring to young children, es-

pecially as they seem to be quite aware that it is wrong. In skating on thin ice the danger is known, but the apparent desire to appear brave and show off checks any fear of personal harm.

F. When I was about 7 years old I was dared to jump from a row boat into the river. I had on a new dress and, of course, I refused to do it. My brother said, "Well, you are a baby; I would n't have thought you were such a coward." My anger was aroused and before any one knew it I had jumped into the river and was struggling in the water.

F. When I was about 8, a crowd of us used to gather on a very muddy street and dare each other to run across in the mud just in front of an advancing horse.

F. A playmate once dared me to stand in a puddle of muddy water. I had on new shoes but I took the dare.

F. I remember many instances of being dared to disobey my parents wishes. When I was 10 years old I was forbidden to jump the stones in the river on the way to school. Very often my companions would say to me: "I dare you to jump the stones this morning." I often took the dare.

F. I remember playing the game of dare. One would take the lead and the others follow. One dare was to walk out to the end of a dock, on some places of which the water came over the boards. For some time I would not do it, but one day growing tired of being dared I walked to the end of the dock.

M. Eddie was not allowed to go to the creek to skate. One day the creek was the only sheet of water that was frozen, so Eddie and a lot of boys went to look at it. They made preparations for skating and dared Eddie to go with them. He hesitated but they double dared him. This time he accepted.

M. When Dean was 10 years old he was dared to cross a lake where the ice had begun to melt. He did so and was almost drowned.

M. Another boy and I were bathing in a small pond. We were seeing how many times we could cross. I became tired and stopped when my companions dared me to go again. At first I would not but as they kept daring me I started. About midway I became tired and nearly lost my life.

F. When I was 13 years, I was dared to walk out to the end of a pier extending into the water for a mile. It was only for the use of trains and was very old. I crept out and back on the ties, the wind blowing very hard and I was very glad to get on shore again.

M. A number of young people were skating on a lake which was very deep. The ice became unsafe and when a place was found where it would bend it was fun for the boys to see who could cross it last. One place had become very much broken when one fellow said: "I'll dare any one to go across the bend with me again." One fearless young fellow said: "I'll take you up, come on." The one that took the dare fell in and nearly lost his life.

In cases where walking in muddy water and skating are involved, the question of right and wrong and disobedience is an equal factor with physical danger. In skating particularly it is a question of testing courage in the face of danger, and the dare is taken because there is the insinuation of cowardice. The characterization of mankind as expressed by the savage to Sir Samuel White Baker, the scientist, might apply here. "Most men," said the barbarian, "are bad. The good men are weak. They are good because they are not strong enough to be bad." In skating on thin ice it usually is the strong one who takes the dare.

The dare of riding a horse is always taken with the knowledge that harm may result, but the possible chance of escape is counted on. The sense of risk appeals to the child who must satisfy his curiosity by experience.

F. (12). My brother dared me to ride a horse without bridle or saddle on him and I rode the horse.

F. (00). My uncle who has a home in the country bought a frisky pony for his children., One day my cousin dared me to get on the pony's back and ride around the lawn. While I was afraid of the animal I did not want any one to know it so I took the dare and got quite a shaking up.

F. (10). My friend who lives an a large farm has a gentle horse to ride. One day we went to get the horse for a ride and my friend's brother, a boy about 14, put the bridle on another horse and dared me to ride it. I knew the horse was not so gentle as the other one but nevertheless I said I would ride it. I was helped to mount it and after going several rounds was glad to get off.

F. When I was small my mother forbade me to swing on the back of my father's carriage as our horse was fractious and she was afraid I would get hurt. I would see my brother do it and I remember doing it every chance I got.

Direct disobedience is seen in this last case while desire to be thought brave and fear of ridicule have been strong enough to overcome the fear of the horse. This primary fear and instinct of self-preservation give way before the more complex social fear.

(3) Standing on the car tracks when a car is approaching or crossing the track when a train is coming are certainly ways of tempting danger and examples of extreme foolhardiness. Here we have the case of a man of 38 crossing before an approaching train because he was dared to do so by a girl. This is certainly an example of foolishness verging almost on insanity or mental defect. The other data concerning acts performed by children savor of a desire for excitement and the experience of a new sensation.

Girl. (8). When I was about 8 years old, a little schoolmate of mine dared me to stand on the track when a trolley car was coming along. I stood there although very much frightened until the motorman yelled at me.

F. (12). I was dared by my playmates to run across the street when a passing car was close to me. I did so and got to the other side of the street.

M. (13). Harry and George placed their ears to the railroad track to listen to the approaching train. When the train came in sight they dared each other to see which could stay the longer. Harry did and would have been killed had not another fellow pulled him off.

Almost as foolhardy are the dares to put one's hand in a candle flame, in hot starch, and the like. The knowledge that one will be burnt is overcome by fear of ridicule and a false idea of bravery. Only four instances of this kind were reported; but they seem to be typical examples.

F. (8). When I was 8 years old my sister dared me to put my hand in boiling starch. I took the dare and had a scalded hand for a week.

M. (9). A boy of 9 dared by another boy to take a burning brand from a bonfire. He spit upon his hands, did it and when burned was very angry.

F. (10). Helen aged 12, dared Marion aged 10, to take a tin cup from the heap of ashes of a bonfire.

F. (11). Girl aged 11, dared to pass hand through a candle flame. Did so without burning it.

Fear of the dark, in which there is a vivid and persistent representation of possible physical harm is overcome by the moral fear of being thought weak and the social fear of ridicule. Darkness causes an instinctive fear in children which, if worked upon, often persists to adult age, where it may develop into a defect. A number of reports concern dares to encounter darkness.

F. (7). Agatha's aunt dared her to go up stairs to get a shawl which was in a dark room. Agatha was afraid but went up and got the shawl.

F. (9). A number of girls were playing in an alley which went from one street to the other and had several barns and an undertaking establishment on it. Girls dared Edna to go through when it was dark. She was afraid but took the dare, went through and returned with a feeling of approbation.

F. (11). I was dared by my playmates to walk slowly around one of their houses alone when it was dark. I started bravely, but when the corner of the house hid my friends from view I began to feel very uncomfortable. It seemed to get darker every minute. I was sure there were mysterious forms in every bush lurking there for my destruction. I heard ghost-like steps pursuing me; I dared not look around but with my eyes on the ground kept a slow, steady pace until the deed was accomplished.

F. (8). Had great fear of the dark. One evening brother said: "Elsie, I dare you to go up in the attic alone without a light." She hesitated, but disliking the idea of not being able to take up the dare, conquered the fear of the dark and went.

F. (14). Dared to walk through a cemetery at night. Was afraid but would not show it and walked through.

F. (8). Dared my brother to walk through a dark wood. Refused the dare but the next night sneaked out of the house and walked through the wood, then told brother.

The last example tends to show how a dare may exert an influence which might cause serious results both physically, mentally and morally either for good or for bad.

Other dares, which do not come under a definite classification, show the same defiance of physical harm resulting from fear of ridicule or a desire for mastery.

F. (10). Dared to ride bicycle without having hands on handle-bars. Did so, fell off and broke her arm.

M. (12). To creep under all the beds in the house.

M. (11). To wrestle with another boy. Did so, broke his arm.

F. (10). To walk along edge of tin roof where she had been forbidden to go. Fell off, sprained her wrist.

F. (6) Dared by brother to lay her head on fly paper. Did so and was obliged to have curls cut off.

F. (12). To roll down railroad bank covered with snow.

F. (18). To walk through a field where large cow was kept. Disliked to be dared, but took the dare and could not speak when she came out of the field.

F. (7). To pick up a worm.

F. (7). To pick up a caterpillar.

(7) Jumping rope up to 100 is not only a game, but it furnishes the occasion for a dare which is indulged in particularly by girls. Though it is realized that harm may come from prolonged jumping the desire to show one's ability is prominent, in fact the attempt to reach the century mark in jumping might be considered a form of showing off through the influence of a dare.

F. (10). My schoolmates dared me to jump a hundred times without stopping. I tried to, but did not get up to 100.

F. (10). I once jumped 200 times without stopping on account of a dare.

F. (10). My schoolmates told me of a girl who jumped 100 times and dropped dead. They then dared me to do it which I did.

F. (18). Yesterday I was dared to jump rope and not willing to be defeated by the others present, I did it.

(8) Eating various things on account of dares is common among young children, particularly in defiance of possible resulting sickness. Children between 6 and 8 are particularly prone to eat mud pies, the unconscious instinct of eating not being as prominent as the desire to show one's ability.

F. (16). Dared to eat a certain weed. Was afraid but had seen the cat eat it, so felt she would not die if she ate it.

M. (6). Dared to eat a bottle of quinine pills.

M. (7). To eat a raw potato.

F. (7). To eat a mud pie. Unable to finish it.

F. (7). Playing house dared to eat a mud pie. Could not get the sand out of her mouth. The other children laughed she thought she was in great pain and began to cry.

F. (8). Dared to eat a red pepper.

F. (10). Dared to eat yellow clay. Made believe that I liked it although the truth was quite the contrary.

F. (10). Heard it would make a person sick to eat a raw oyster with sugar on it. Was dared to do it and ate one.

F. (8). Dared to eat poison ivy. Did so.

F. (12). Dared to eat green crab apples. Ate two. Taste remained in mouth for a week. Felt sick but would not tell any one.

F. (14). Dared to eat flowers. Did so very often, finally became a habit to eat any flower.

F. (12). Dared to eat horse chestnut.

F. (6). To eat soap and starch with oil in it.

F. (12). To eat poisonous sumach. Afraid of plant, but ate it for dare's sake.

Dares which court danger from others involve a moral aspect in that the danger is generally in the form of punishment. Disobedience, often of a direct and willful form, setting at defiance the restraint of authority, and the endeavor to impress one's companions that parents or teachers are not feared, are the underlying reasons for accepting these dares. At times there is hesitancy in taking the dare especially when the children are old enough to have definite ideas and understanding of right and wrong conduct.

Annoying the teacher seems to find general favor among children, and while one may feel a secret bond of sympathy with them, the data bearing on this all show a lack of respect, improper bringing up, defiance of authority, and the meaner motive of endeavoring to arouse anger.

F. (7). We had what we thought was a hard reading lesson. The other girls tore their's out out of their books and dared me to do the same. At first they called me names and then I thought I was a coward so I tore the lesson out. I felt I had done a great wrong and had no peace until I had told the teacher.

F. (9). Dared to call the teacher a crank. Rather than refuse the dare did it.

F. (10). Dared to upset cup of water on the floor. Did it and was punished.

F. (9). Late frequently at school. Carried a note home every day. Dared to tear it up. Did so without looking in note. Wondered what mother would say.

F. (11). Dared to say Gordon's corner when asked the capital of a country in Africa. Excused from the class for it.

M. (12). To knock on primary teacher's door during school hours. Did it and was caught.

M. (13). Dared to throw incandescent lamp on floor of schoolroom. Sent from the room for making a noise.

F. (10). To wave at strangers going by the school.

F. (10). To write an excuse from school and stay out. Did so but did not enjoy herself.

F. (14). To stay at home from school without telling mother and go after chestnuts. Went but got no chestnuts.

F. (14). Dared to go out of school without permission. Did so and was afraid to come back until recess.

F. (15). To eat raw potato in school.

The knowledge that punishment will result is evident, but the chance that one may escape causes the risk to be taken. This is often seen in adult life where the moral sense being weak unfortunate consequences result.

April Fooling the teacher is along the same line, although the spirit of disrespect does not seem so evident as a desire for enjoyment at some one else's expense.

F. (10). To write April Fool on the board ask the teacher who was substituting "if that problem was correct."

F. (11). To write April Fool in large letters on work to be handed in.

F. (10). To pin long rag on teacher's coat on April Fool day. Teacher walked around the school all day with it on.

F. (15). Went to door of schoolroom and asked to see teacher. When she came to door said, "April Fool."

Calling names, speaking to strangers, etc. often show the underlying desire to arouse some form of anger.

M. (10). One of my companions had a nickname Hippenback which he disliked very much. I was dared to call him it.
F. (11). Dared to speak to stranger. Did so.
F. (11). Sent to the store for granulated sugar, dared by brother to ask for Banty legged sugar. Did so.
F. (6). Dared to speak to a girl she was angry with. Angered by the dare, spoke.
F. (8). To say "Good Afternoon" to a passing stranger.
F. (14). To say to colored girl who was carrying a parasol over her head. "Ella, aren't you afraid you'll tan?"

Ringing the door bell gives pleasure to boys, and they do it for the excitement of seeing what will happen. Visions of an angry woman coming to the door appeal to their sense of the ridiculous. The pleasure in it decreases after the age of twelve or thirteen, when other interests hold their attention.

M. (7). Going to school, dared to ring door bell.
M. (11). Dared ring elevator bell in state house. Rang bell and ran.
F. (7). Dared ring front door bell.

Some dares which court punishment but where curiosity is the prevailing factor are seen in the following. Interest in the unknown and unexplored as shown by these might be turned to higher things if directed right. The lower qualities of doing harm do not seem to prevail.

F. (8). Dared to cut whiskers off a black cat. Did so and destroyed his beauty.
F. (11). Dropped a cat from second story window. Hesitancy at first was overcome by the desire to see what would happen.
M. (4). Boy fond of running on streets. Forbidden to go out of yard. Dared to come out, did so.
F. (7). Passed a yard where there was an angry goose with little goslings. Admired goslings, dared to pick one up. Hesitated but finally did so.
F. (6). Dared turn spigot in a barrel of vinegar. Knew it was wrong, but dreaded ridicule, turned the spigot wasted 10 gallons of vinegar and was severely punished.
M. (20). Dared to throw a pitcher of water at roommate.

Others which show lack of respect and defiance of authority, a perverted moral sense which in later years may lead to serious wrong doing, are seen in the following:

F. (4). Dared to refuse to obey maiden aunt.
F. (7). Dared to knock paper from father's hand. Knew it would make him angry, but did it.
F. (7). Dared throw water in brother's face and wake him.
F. (10). To leave the house before the dishes were washed.
F. (13). Went to the store, dared to leave articles on porch and run.
F. (14). Got behind aunt's chair and pull it from under her.
F. (12). Dared to sew teacher's coat sleeve up.

F. (13). Took a girl driving. Stayed very late. Dared not tell mother where she had been.

Things may be eaten when there is danger of illness resulting, and also on a dare when direct disobedience is involved.

F. (5). Dared by small brother to take piece of chocolate cake.
F. (6). Dared to eat ear of sweet corn. Did it but felt ashamed of taking it without mother's knowledge.
F. (6). Dared to eat a banana which mother had forbidden her to touch. Preferred to disobey rather than refuse the dare.
F. (6). Dared by brother to eat icing left to cool. Ate it and was sick.
M. (6). Dared by little cousin to steal cake from closet. She said: "Roy you are afraid, I dare you to!" Roy did it immediately.
F. (15). Dared to eat quinine pills. Ate three.

At the root of desire or craving lies a consciousness of inferiority. To desire a thing is to feel the absence or want of the thing. Children desire to appear well in the eyes of their mates, to be considered brave, consequently they will often do things when it would expose them to ridicule if they refused. This is seen in the matter of wearing clothes of various sorts and eating things disliked. Girls will wear old and ridiculous clothes with an idea of showing their bravery and courage in so doing. Girls between 12 and 16 will put on their father's or brother's clothes, probably impelled by the desire to see how they would look, although aware of the impropriety. The following are examples:

F. (7). Dared to dress up in old clothes and play mother was a washerwoman. Did so and passed the morning on the street telling people about poverty of the family.
F. (7). Wears old black hat on street.
F. (8). Wears brother's clothes out doors.
F. (8). Dared to wear mother's long skirt to the store. Did it, but felt very foolish.
F. (9). Dressed in mother's clothes and went out on the street.
M. (9). Dared to wear mother's sunbonnet to post-office. Did it.
F. (11). Wore father's clothes on street.
F. (11). Dressed like Salavtion Army lass and went out on street.
F. (14). Dared to wear father's long coat and derby down town. Did it.
F. (16). Dressed in brother's clothes and went to aunt's house.

Eating and drinking things disliked are done only to avoid ridicule and show the beginning of a character which may be swayed by the opinion of others.

F. (14). Dared to eat half a dozen olives. Ate them though I disliked them.
F. (18). Dared to eat large spoonful of strong horse-radish.
F. (10). Dared to take "bad medicine."
F. (15). Dared to drink five glasses of water at once. Had boasted of ability.
F. (18). Dared to drink a cup of vinegar.

Some dares which seem to be in direct defiance of propriety are seen in the latter data. Children should be taught the fitness of correct behavior, and when it is set at defiance after the age of twelve the instinct of action is being turned in a downward direction. It is as bad and perhaps worse to be unmindful of the opinion of others as it is to be too mindful of it, and the spirit of rash action being nurtured may crowd out a better instinct. The spirit encouraging the dare may be condemned as much as the spirit of the dare itself.

F. (10). Dared to jump in wagon and ride to town with a farmer.

F. (15). Dared to untie horse and carriage and go driving.

F. (9). Drove around in father's grocery wagon with a boy she did not know.

F. (16). Dared to go into fashionable confectionery store and order a cents worth of candy.

F. (19). Dared offer waiter in ice cream parlor $5 bill in payment for two plates of ice cream.

F. (19). Dared carry two live chickens from market.

M. (20). Dared to sweep street. Took dare reluctantly.

REFUSING TO TAKE A DARE

The data on refusing to take a dare are not sufficient to warrant any conclusion as to age, there being only twenty-six answers from girls and two from boys. Of the answers from the girls the largest number were at the age of 8 years; 9, 10 and 12 showing the same number respectively. Jumping and eating things usually forbidden still play the principal part. The reasons for refusing to take the dare show some rather striking contrasts, the idea of harm to themselves or of disobedience seeming to hold equal place. These are seen in the following:

Girl (8). Dared to jump off a shed roof, became very uuch frightened when she thought of the distance and refused to take the dare.

Girl. (12). Dared by another girl to jump over a post said: "I can do it, but I won't do it now for my head aches."

Girl. (13). Dared to eat a green peach asid, "Eat a green peach? I guess not: What do you take me for anyhow?"

Girl. (8). Dared to be hidden in a barrel in a field, knew her mother would look for her and be anxious so did not do it.

Girl. (7). Dared to hide the boy's ball bat. Afraid her cousin would whip her so did not do it.

Girl. (7). Dared to jump from stone steps. Every time she jumped was afraid of catching her foot on one of the bottom steps and falling. At last refused, giving as an excuse "It stings your feet too much to jump."

Girl. (10). Dared to call her father up on the phone and tell him to come home. Knew she would be punished so would not.

Boy. (10). Dared to eat a green apple after his mother had forbidden him to do so, refused to take the dare.

Girl. (10). Dared to go on the ice when her mother had forbidden her to do so. At first she felt uncomfortable seeing the other girls and listening to their jeers, but was glad she had minded when she went home.

Girl. (12). Mother had forbidden her to go to the woods after Arbutus. Children coaxed and pleaded with her; finally one said, "Well you don't dare," she replied, "I won't take your dare even though I am sorry I can't go."

The rejection of various other dares was reported, such as refusing to ring a door bell, turn a hose on a colored boy passing, bury a ring, roll a piece of candy in the sand and eat it, and wear an old hat to church; but no definite reason was given.

One instance in which a sense of right and wrong is seen, is the following:

Girl. (7). Passing a grocery store saw a basket of apples. Another girl said, "I'll dare you to take one." "No," replied, the other, "I won't do it, It isn't right."

Another case shows a similar feeling.

Girl. (10). Dared to take an apple out of a boy's desk. Other girls said, "If you will, then we will." She still refused. They called her a coward and double dared her but she still refused. Two others show somewhat different phases of the sense of right and wrong, one refusing the dare with the feeling of victory to herself, the other on the ground of propriety.

Girl. (8). When I was about 8 yrs. old, I was dared to jump a stream about 3 feet wide. Before I was dared I did intend to jump the stream, but when dared I emphatically refused. I felt I had gained a victory because I wanted to jump the stream very much. I was always taught it was wrong to take any kind of a dare. I felt sure I could jump it and was making a sacrifice in not coming to the front and showing my power.

Girl. (15). Walking in the woods with a younger girl they suddenly saw a drunken man staggering along. "I dare you to speak to that drunken man," cried the younger girl. The older refused on the plea of propriety.

CONCLUSION

From the present study it appears that the origin of the impulse to take a dare may be traced back to fear and pride. It is an emotion which centres around the idea of self and is largely the love of approbation and fear of its opposite. Every child wishes to keep the good esteem of its playmates and will do all in its power to gain and retain it. The exercise of power also comes in, which as Bain says is due to a sense of superior might or energy on a comparative trial. The growing youth is pleased at his increase of strength, and the conquest of any apparent difficulty gives him a thrill of satisfaction, as the idea of being beaten in a contest brings the depressing sense of littleness. Any one detracting from his sense of superiority, influence and ability stings to the quick and gives rise to a feeling of resentment which has jealousy at the root.

Dares involving jumping, imitation, chance and desire for excitement are furthered by the underlying definite and intense impulse for activity. In eating things and wearing things curiosity as to the result comes in as a secondary factor.

Taking a dare is not a thing to be encouraged, but rather discouraged. The instigator of the dare may develop rashness or bravery, but for the great majority of those taking the dare it is only a weakening of their moral sense of right and wrong; they allow the fear of ridicule to overcome moral courage. That children are aware of the meaning and sense of taking a dare is seen in the replies of those who said, "I was often sorry after I had taken the dare;" I felt I had gained a great victory in not taking the dare;" "I felt very foolish for taking the dare." These, of course, are undoubtedly in the minority, the fear of being called a coward or the teasing of one's mates usually causing all other considerations to be set aside.

The dare is often the cause of much misunderstood behavior in children. Often an act seems bold and rash to us, as when urged on by his brother, sister or playmates, the child "knocks a paper from his father's hand;" "annoys the teacher;" skates on a pond, when forbidden, or the like. Not knowing that he has been dared we condemn him, but were the fact known, the punishment would be directed especially toward the "darer."

How best can a feeling of disapproval be aroused and the impulse to activity inherent in the dare be turned to good account? The remedy is suggested by the dare itself.

The desire for excitement in the "darer," and of approval in the one dared, may be guided in the right direction by training in games involving leadership and chance. In such games the sense of fair play for all is developed, rather than pleasure in possible harm and discomfort to some. Gymnastic and athletic ability may also help. Half the pleasure is lost to the boy who says, "I dare you to jump from that beam," when the child dared not only proceeds to accept the dare but may even attempt a still harder one. He has a knowledge of his own power and ability and knows how far he can rely upon them and is undisturbed at any challenge of them. For the weak, timid child to gain this courage is of physical as well as mental benefit.

Taking a dare is not necessarily a thing to be deplored; indeed, a dare given and taken in the right spirit may not be harmful; but when the evil impulse of inciting others to do wrong comes in, it is morally dangerous. This must be guarded against. The school may play an important part here. If it builds up a spirit of fair rivalry and competition, of co-operation for the general good of all, of abhorrence toward anything inclining towards meanness, and encourages this spirit, in school and out, in play and in class work, a protection and a strength will be built up which may be relied upon.

As the material shows, in a dare lies one of the greatest temptations to children. In the material on refusal to take a dare we have seen the feeling of satisfaction and of gain at being able to say "no." Shall we teach the child that when dared he should refuse and respond by saying, "I can do something harder than that." This, if carried too far, might develop into a sort of boastfulness, but on the other hand we do not want to teach a child that he must always refuse a dare and thus run the risk of developing a prig.

The material on which this study is based is not sufficient to warrant any very definite conclusions; but it shows that dares are common among children between the ages of 8 to 11, it is extremely suggestive, and it does indicate that the problem of developing in children the right attitude toward a dare is one of prime importance in child training.

Distribution of cases according to Age

Age	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	38	Total
GIRLS																				
1. Walking in water, etc.		1		1	2	4	5		1	1			1							16
2. Jumping			8	3	9	4	3	4		2		1	1							35
3. Riding or driving horse				3	1		2			1	1	1								9
4. Walking in dark				1	1	1		1												4
5. Putting hand in flame					1	1	1	1												4
6. Ringing bell				2																2
7. Standing on car track					1				1											2
8. Jumping rope							3								1					4
9. Wearing clothes					2	2	1	2			1	1	1							10
10. Annoying teacher				1	1	1	3	2			2	1								11
11. April Fooling teacher							2	2												4
12. Eating			5	3	3		5		2	1	1	1			2					23
13. Drinking liquids							2							1						3
14. Calling names			1		1			2			1									5
15. Miscellaneous	1		2	4			5		4	1	1		1			1	1			21
BOYS																				
1. Walking in water		1					3		1	1										6
2. Calling names							1													1
3. Ringing bell				1				1												2
4. Standing on car tracks										1									1	2
5. Annoying teacher									1	1	1									3
6. Eating			2	3			1													6
7. Wearing clothes						1												1		2
8. Jumping			3		1		1		2				3							10
9. Miscellaneous	1				1			1	1								2			6
Total	2	2	21	22	24	14	38	16	13	9	8	5	7	1	3	1	3	1	1	191

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EUROPEAN INVESTIGATIONS IN SCHOOL HYGIENE[1]

By Wm. H. Burnham, Ph. D.

During the last twenty-five years many important investigations in School Hygiene have been made in Europe. These have had to do with the sanitary conditions of schoolhouses, the growth of school children, school diseases, defects of the senses, adeniods, decaying teeth, the development of the voice, the hygiene of reading, writing, and of the other subjects of the curriculum, as well as fatigue, the period of study, recesses, home work, etc., etc.

I have time to illustrate but one class of these investigations and I choose those that relate to the management of contagious diseases in the school.

First of all, let us take diphtheria. Recent investigations in London suggest the scientific method of managing this disease in the schools. But before speaking of these, let me ask you to recall a few facts. Every adult here can recall the dread caused by this enemy of childhood before the use of the antitoxin became general. It used to be the most alarming of the school diseases, and every mother knew the danger liable to be encountered when she sent her child to school. The way the doctor felt is well described by the words of a prominent physician.

"Nor was the doctor in much happier plight. The feeling of helplessness, the sense of foreboding, with which we faced every case was something appalling. Few of us who have been in practice twenty years or more, or even fifteen, will ever forget the shock of dismay which ran through us whenever a case to which we had been summoned revealed itself to be diphtheria. Of course, there was a fighting chance, and we made the most of it. But what turned our liver to water—as the graphic Oriental phrase has it—was the knowledge which, like Banquo's ghost, would not down, that while many cases would recover of themselves, and in many border-line ones our skill would turn the balance in favor of recovery, yet if the disease happened to take a certain sadly familiar, virulent form we could do little more to stay its fatal course than we could to stop an avalanche, and we never knew when a particular epidemic or a particular case would take that turn. 'Black' diphtheria was as deadly as the Black Death of the Middle Ages."[1]

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[1] Address given at the second Child Welfare Conference, Clark University, June, 1910.

Since the use of the antitoxin has become general the mortality from diphtheria has decreased remarkably. In Boston the average ratio of mortality from 1876 to 1894, before the use of the antitoxin, was 14.25 per 10,000 of the population. The average ratio since the use of the antitoxin from 1895-1909 inclusive has been only 5.17. The decrease in mortality is well illustrated by the statistics gathered by Dr. McCollom at the Boston City Hospital.

While the use of the antitoxin has enormously reduced the mortality, nevertheless, many of its terrors still remain, and frequently it is difficult to control an epidemic of the disease.

The significant facts in regard to diphtheria are briefly as follows:

The disease is caused by the Klebs-Loeffler bacillus in the throat or nose, and is usually spread by direct personal contact. The persons who are acutely ill with diphtheria are not the serious sources of contagion; for they are isolated. The most serious sources of contagion are the following:

First, the perfectly healthy child who has come in contact with the disease and carries the germs. Such cases are called "carriers."

Second, children who are suffering from mild forms of the disease not perhaps suspected by parents and teachers.

Third, children who have had the disease, but have returned to school still carrying the Klebs-Loeffler bacilli.

There are many survivals of old ideas in regard to the treatment of diphtheria. It is usually supposed that it is always a severe disease, and hence the great danger that comes from "carriers" is ignored. School closure is resorted to and the children allowed to return to the school after a few weeks without any examination to prove that they are free from the disease. and great faith is placed in disinfection as a means of protection. This without bacteriological examination is of no avail. We disinfect the rooms and the furniture, but the disease germs are in the noses and throats of the children. Disinfection by means of sulphur, as described by Dr. Kerr, is "a procedure only to be classed with fetichistic incantations and medivæal exorcisms."

Very important and significant studies of diphtheria among school children have been made in London under the direction of the medical officer. The method is similar to that used by boards of health in this country, only special effort is made to detect the carriers before they do mischief.

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[1] Hutchinson, Woods: Preventable Diseases, Boston, N. Y., 1909. pp. 223-224.

"Diphtheria returns are kept under continuous observation, and on any suspicion of school influence showing itself my assistant visits the school, and all children giving any sign of ill-health, such as aural or nasal discharge, enlarged glands, undue pallor, or a history of recent absence, have a small portion of mucous removed from throat or nose by a sterilized platinum wire, and placed on the surface of a tube with sterile blood serum. This is then cultivated in an incubator at 98° F. for 15 to 18 hours. The cultures are then examined microscopically, and any showing suspicious forms are then stained with Neisser's stain. Except in very rare cases this is deemed sufficient. Only cases showing Klebs-Loeffler bacilli are counted as diphtheria, the pseudo-bacilli we neglect." (Report of the Educ. Committee of the London County Council, March, 1905. London, page 25.)

In some cases cultures are made from all the children. The significant and favorable results of a scientific method of managing diphtheria are illustrated by the following concrete cases from the London reports:

"Grafton-road (Islington, N.)—During April, 1905, some cases of diphtheria occurred amongst the infants; out of 33 cultures one boy was discovered to be a carrier, and on his exclusion the outbreak ceased.'"[1]

"William-street, (Fulham).—An upper class of the Infant's department having had several cases, 33 of the children were bacteriologically tested, and six found to be harbouring the bacillus. On excluding them the outbreak terminated."[1]

"Union-street (Woolwich).—Much illness and some diphtheria being reported, a visit of enquiry was made on December 11th, 35 infants being examined, nine presented Klebs-Loeffler bacilli. Measles and whooping-cough were also prevalent, and, as the children seemed in a condition of low vitality and likely to be disposed to aid dissemination of infectious disease, the department was closed till the Christmas vacation."[1]

"At Lewisham Bridge School, in September, a few cases of diphtheria occurred in an infant class room. The Medical Officer of Health was very anxious to close the room and exclude all the children, but it was felt that the more scientific procedure would be to discover the carrier cases, and exclude them only. Accordingly, the children were all examined, and two were found harbouring diphtheria bacilli. On the exclusion of these two the outbreak subsided entirely. One of the cases—R.C.—had a profuse nasal discharge; On December 8th he was again re-examined, and although the nose now was free from diphtheria germs, a culture from the apparently healthy throat still gave Klebs-Loeffler bacilli, although this time they grew in degerate and bizarre forms, showing that their vitality was on the point of exhaustion. In this case, therefore, the diphtheria bacilli persisted in a throat for over seventy days. Had the children been excluded, say, for twenty-one days, this boy would have returned with the others in a still infectious condition, and the closure would have been a failure."[1]

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[1] Report 1906, pp. 33, 34.

In the report for 1909 of 3,009 cultures from 25 schools, where the diphtheria bacillus was found 122 cases Dr. Kerr says, "In every instance in which carriers were detected and excluded from the school there was a prompt cessation of cases of diphtheria."

Thus, in general, school closure as a means of checking diphtheria is likely to have but little influence; with competent medical inspection it seems better ordinarily to have the schools continued, because in this way the disease can be better controlled than when the children are on the streets or at home. Dr. Kerr in a recent report writes:

"It has been shown that school closure ought seldom or never to be necessary in elementary schools owing to the prevalence of diphtheria. With modern technique it is possible to discover those who are spreading the disease and to obtain their exclusion. The objections to school closure are that "carriers" are not discovered and isolated, and that there is not the least guarantee that at the end of the period of closure the children who are the cause of the spread of the disease will be innocuous. The closing of schools for diphtheria should be looked upon as a confession of impotence and defeat."

The only safe method of procedure seems to be the following: As soon as a case breaks out in a school bacteriological tests of all the children should be made in order to detect any possible "carriers." In case diphtheria has occurred in a household all children in the family should be examined bacteriologically before being permitted to re-enter the school. Children who have had the disease should not be permitted to return to school until a number of negative cultures has shown that the disease is no longer carried.

The problem of dealing with diphtheria in the school is a very difficult one because the only sure way seems to be the exclusion of all children who are "carriers." But this is likely to be strongly objected to by parents, who see no reason why children who are well should be excluded from the school. The serious character of the disease and the satisfactory results likely to come from thorough-going investigation and rigorous exclusion of all cases showing a positive culture, seem thoroughly to justify such drastic measures, and teachers and the community should be educated to the need of a scientific method of handling the disease.

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[1] Report 1904, p. 21.

Very interesting investigations have been made also in regard to measles, which Dr. Kerr calls "the most fatal disease of childhood and the one which plays the greatest havoc with school attendance." The studies made indicate the great saving of life which occurs if the disease can be postponed from the early to the later years, even from the kindergarten to the elementary grades, and the importance of the scientific method of dealing with the disease. Passing over these investigations, interesting and important as they are, I may give a single illustration from a different field.

Certain forms of psychic and nervous disorders may fairly be reckoned among the contagious diseases. They are, of course, spread not by germs but by psychic contagion, by imitation; but isolation of the pupils and school closure are sometimes just as necessary as in case of measles or scarlet fever; and the importance of a scientific mode of treatment in such epidemics seems to be clearly shown by the cases on record.

Among the more obvious of these psychic epidemics are those where the chief symptoms seem to be a form of hysterical convulsions. Several epidemics of this kind in public schools have now been reported. I choose two of these which are instructive from one school in Switzerland.

1893 in a girl's school in Basel an epidemic of this kind broke out, and this was made the subject of a special study by Dr. Aemmer. The chief symptom of the disorder was an hysterical tremor. This attacked especially the weaker and more nervous children. The school was clearly the focus of contagion and the desire to get rid of school work seems to have been an important factor in causing the disorder.

The presence of psychic contagion was obvious. Dr. Aemmer concluded that the epidemic was chiefly due to imitation. The cases were concentrated. The disorder spread from those first attacked into other classes. It decreased during vacation and broke out again after vacation. The attacks were rare or ceased altogether as soon as the children were kept at home. There was often a relapse when they returned to school again. The disease frequently appeared among children who had before been healthy when one of the sufferers had an attack in the immediate neighborhood; and when one child had an attack others did also.

The measures that seemed finally effective were as follows: Every child attacked was sent home. Children that were cured were excused from writing and manual work and gymnastics for the first three weeks after returning to school;

parents were requested to spare their children excitement and strain; poor children were fed; the feeding of the sick children was extended over vacation time and united with walks and play out of doors. But not until these measures had been carried out for a long time did the epidemic cease.

By what seems to have been a remarkable coincidence a similar epidemic of nervous convulsions broke out in the same school about ten years later, namely, in 1904. The epidemic continued four weeks. The cases occurred in fourteen different classes. The age of the pupils who suffered was from eleven to fifteen. The characteristic symptom was a quick vibrating tremor usually in the right hand and in the right forearm. The predisposing causes seemed to be often anæmia, or nervous heredity; but in many cases they were indefinite. The immediate cause in most cases was imitation or autosuggestion, although it was reported to have been fright in a few cases. That the desire to get rid of school work was also a predisposing cause seems to have been clear.

On the 11th of June the report was first circulated that the tremors had broken out in the girl's school and that they would get a lengthened holiday, namely, six weeks for the summer's vacation. In one building the rumor was that there would be six weeks of the summer's vacation if 300 pupils had the tremors On the 13th of June it was reported that two pupils in one school had been sent home on account of the tremors. On the following day two further cases occurred, in another schoolhouse also two more. The number continued until altogether there were 27 cases.

The school officials, however, had learned wisdom. Instead of sending the afflicted pupils to their home or closing the school the announcement was made that school would continue in session as usual, and it was made clear that the contraction of this disorder would not be a means of escaping from the work of the school.

The method of treatment was very interesting. Dr. Burckhardt proposed that they should not exclude the afflicted girls from the school, but form them into a special class and have them instructed separately from the other pupils. Accordingly a small room was taken for the purpose and a special teacher opened the class on the 17th of June, and this was continued for four weeks.

Talking with the pupils seemed to be helpful. As soon as a case occurred in a class the pupils were appealed to, to use their reason, and as soon as the special class for the patients was opened, and especially after the pupils had nicknamed this the *Naarestibli*, "Fool-institute," this appeal to the pupils was no longer necessary.

Special care was taken of these pupils in the special class. The hours were short; the pupils worked from quarter past eight in the morning until half past nine and then there was a recess for half an hour; then they worked from ten to quarter of twelve and then there was no further work until from quarter past two until three forty-five. The children were given warm milk and bread for a lunch. They had simple gymnastic exercises beginning with free exercises. Ten simple arm and hand movements were employed. The instruction covered all the chief branches of the curriculum. Care was taken that the children should not be overworked. There was only one case of negligence. There were few cases of absences, namely, only four out of 444 half days, only one absence for illness.

A great deal of common sense and psychological insight was used in the treatment of these cases. The calmer children were placed in the front seats. The children were not questioned or punished or blamed on account of failure in their lesson.

School work was not much affected, except in some cases the penmanship and arithmetic. The pupils of this special class seemed to enjoy their work. They were reported as being very happy, and they seemed to develop a certain group consciousness and group spirit. They named their class the *Zitterklub Konkordia.*

A single concrete case is described as follows: The patient, E. S., was a girl of 13 years of age, weak and anæmic. On Friday, the 17th of June, she came home carrying her right hand, which trembled violently, in her apron. The mother scolded her for acting so like a fool. This had the effect on the quiet timid girl of making the excitement all the greater. The nervous twitchings appeared in the face also when the child attempted to answer; and this tremor in the face continued for about an hour. The mother who could not understand why the movements could not be repressed firmly bandaged the child's arm. The tremor did not stop but pain in the elbow joint ensued.

On the 18th of June E. S. came to the special class. She trembled so violently that writing was impossible for her. She was unable to answer the easiest questions and could not work with one place numbers in arithmetic. On Monday, the 20th of June, during a conversation during the ten o'clock recess her arm was unobtrusively massaged by the teacher, whereupon the movements became weaker. On Tuesday, the 21st of June, toward evening the tremor ceased. On Wednesday the pupil was calm and a surprising improvement in mental activity ensued, so that her performance was in no way behind that of her classmates. On the 24th of June, she was dismissed from the class; and no more convulsions occurred.

Imagine 27 such cases and you have the *Zitterklub Konkordia*.

The great advantage of pedagogical treatment in such cases, and the wisdom of the special classes instead of school closure, seem to have been clearly demonstrated. The epidemic was soon over.

There were only six cases of relapse.

The noteworthy things in regard to this epidemic are as follows:

1st. The *tremor hystericus* as it was called was a purely psychic phenomenon. There was no pathological change of the nervous system at the basis of it.

2nd. It attacked especially the anæmic and nervous girls; and in most cases was caused by imitation, but also in some cases by fright and auto-suggestion.

3rd. It consisted in a quick vibrating tremor, most frequently in the right hand and in the right forearm, less often in the left hand and in the left forearm and upper arm or in the lower extremities.

4th. The treatment was purely a pedagogical one. The checking of the spread of the disorder was brought about by isolating the patients; and the cure of the individual was brought about by general improvement of the health, by talking to the patient, by regular occupation and by distraction of attention. Strengthening of the will and making the patient forget the tremor were helpful. In every case mildness and patience were necessary; great severity was harmful.

This study is instructive, not merely because it indicates how similar epidemics should be treated, but also because it suggests a helpful mode of treatment for what may be called certain moral, or immoral, epidemics that frequently occur in the schools.

The results of the few investigations that have been described are enough perhaps to show the importance of European investigations in Child Hygiene.

Certain definite facts in regard to these so-called children's diseases should be emphasized. First of all, although the children of to-day are the descendants of generations who have survived these diseases and are relatively immune, nevertheless, the mortality from such diseases in the early years of life is very serious. According to the rough statistics of the United States census the annual mortality from measles is nearly 13,000; from scarlet fever, over 6,000; whooping cough, nearly 10,000.[1]

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[1] Woods Hutchinson: *op. cit.*

Second, the prevalence of these diseases seriously handicaps school work. According to Mr. Martin, Secretary of the Massachusetts Board of Education, "In consequence of the presence of some infectious disease, chiefly diphtheria, scarlet fever, or measles, during the school year of 1906-7, 318 schoolrooms" in Massachusetts were closed and classes dismissed. These rooms were in seventy towns and the classes included 12,122 children.[1]

I have spoken especially of diphtheria, taking this as an illustration. It is now well known that this is a preventable disease. With proper isolation and general scientific management it has been estimated that this, along with other school diseases, could be eliminated from the world in ten years. It would in any case probably be possible in a short time to make the danger of a child's contracting this disease in a schoolroom as slight as that of his being attacked by a lion on the way to school in one of our urban communities. This at least is the aim of hygiene.

The school being a place where practically all of the children are collected offers an unusual opportunity for controlling and checking these diseases. The adoption of scientific methods would mean the saving of the taxpayer's money, the saving of much suffering, and the saving of the lives of thousands of children.

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[1] Annual Report of the Bd. of Education, 1906-7, p. 93.

BOOK NOTES

A history of education during the Middle Ages, and the transition to modern times. FRANK PIERREPONT GRAVES, New York, by Macmillan, 1910. 328 p.

The position of the author in his first volume which appeared in 1909, is maintained in this, the second. (1) He believes, with Davidson, that education may be regarded as "conscious evolution" as opposed to the unconscious evolution of the race before man "took himself in hand and endeavored to direct his living toward a higher development." (2) He believes that all real progress has been through individualism, he has "endeavored to point out the traditional forms of expression that have grown up among the various peoples and become fixed by social habit, and the lack of progress that has ensued, until, through some conflict of traditions, the individual is enabled to select a new pathway of expression." A reading of the book makes it clear that his individualism is not of the narrower sort. He recognizes the tendency of individualism to run riot if too self-centered, and that the problem facing modern educators is to "harmonize the individual with society and to develop personality progressively in keeping with its environment." (p. 317.)

The first part of the book deals with the Middle Ages. The problem was one of assimilation and was characterized by repression. "Progress was impossible until the bondage of authority, convention, and institutions was broken." The period was not one of complete stagnation, but, of slow and painful development. While the author is well aware of the shortcomings of its various institutions, and submits a careful criticism of each, he shows that in the end each contributed something to the general progress. In a transitional chapter, "The Passing of the Middle Ages," he summarizes the period, brings together the various influences that have been at work, shows how at last all things are prepared for an awakening of the human spirit, and thus leads naturally to the second part of the book, "The Transition to Modern Times."

Here, of course, the problem becomes more simple as regards the fortunes of individualism, but more complex when one attempts to estimate the many various factors involved. There are times when one regrets that the author must confine himself to the limits of a text-book; so many are the facts that must be recorded that the criticism is forced to become less explicit and more general. However, the original point of view is maintained, and we are shown how individualism arose in Italian Humanism, only to fall because it was too personal; how, north of the Alps, where it had greater promise, it was smothered by the formalism and distrust of reason among the Protestant reformers and Catholic educators; how, in "Sense realism" it again renewed its strength, only to be overcome by Puritanism, Pietism and Rationalism. Yet, "while it can be seen that the revival in each of these periods lapses and hardens once more into a new sort of formalism, something in every era was accomplished for progress, and the social pendulum never swung back so far as the point from which it started. Thus was the way opened for the absolute break from tradition and authority that occurred during the latter part of the eighteenth century." (p. 316.)

While we may disagree with the author occasionally, as, for example, we think he lets Sturm off too easily, and that he fails to make clear enough the chasm that separated men like Vittorino and Guarino from some of their humanistic contemporaries like Poggio and Filelfo, we must say that, in our opinion, he has written a history that is humanistic in the broadest sense of that term. He has made of dry historical facts a narrative, full of interest, one that touches the life, politics, religion and philosophy of the times. His critical summaries are most helpful; one is continually impressed with his desire to be fair. The list of sources and authorities which follows each chapter is well chosen, though we regret that Ziegler's *Geschichte der Paedogogik* is not included, and that the references are often incomplete without date and number of pages. H. P. WELD.

Der gegenwärtige Stand der Methodik der Intelligenzprüfung (mit besonderer Rucksicht auf die Kinderpsychologie), von E. MEUMANN, Zeit. f. Exp. Päd., B. XI, H. I., 1910. pp. 68-79.

Meumann here deals with the question of the testing of intelligence in a clearer and more concise way than in the last chapters of the first volume of his "Vorlesungen." The article is intended as an introduction to a series, which we are told is to follow, and, while it contains little new matter, it presents the present status of investigations in a clear manner.

The best classification of mental tests is by their aim. On this classification, four great groups appear. First, the psychiatrical. Here tests both of mental content and of correct functioning have been tried. Rodenwaldt, Ziehen and his pupils, have shown, however, that with normal subjects, tests of mental content are extremely unreliable, whether we test for the retention of school knowledge or for memory of personal experience. There is literally no item of knowledge that may not be lacking in the normal subject. Tests of mental content ought, therefore, to be used with caution, and to be confined to the field of psychiatry alone, where unusual gaps in knowledge are of course suspicious. Better standards are needed.

The second great aim of investigations of intelligence is to separate the normal from the abnormal child. The problem differs from the psychiatrical, (a) because we are dealing with the first symptoms of mental disease and a prognosis is more difficult, and (b) because many tests usable with the adult are too complicated for the child. In this group falls the question of tests for the degree of subnormality. Those of Binet and de Sanctis are the best here, as are those of Major for incipient abnormality.

The third aim is the analysis of the intelligence of the normal adult. Here must be investigated grades of capacity found within normal limits, qualitative differences in capacity (types of attention, imagination, etc.), and the correlation of different traits in the same individual.

Fourth, we have the question of the determination of the intelligence of the normal child. This repeats the problems of the third group, and in addition we have the question whether standards for given years can be set up (work of Binet and Simon, Goddard).

All four groups of problems may be approached from two different points of view. First, we may analyze the intelligence of the subject point by point, considering every function, and showing, synthetically, how the functioning revealed determines his behavior in a concrete situation. This is the ideal method for the testing of intelligence, but impracticable. A short cut to the same goal has therefore been adopted; second, by the so-called "mental tests," which seek to determine the general intelligence of the individual by his reaction to a single series of critical tests. Such tests may be "psychoanalytic," seeking to adapt some common psychological experimental method so as to involve a test of the higher mental functions indirectly (æsthesiometer tests, etc.); or "practical," involving behavior in a complex situation empirically chosen as a test of intelligence (Binet's method of comparing the length and correctness of phrases copied from a single glance). Both sorts presuppose (a) that all mental functions share in any activity, and (b) that correlations exist between the different mental faculities. Until these presuppositions are thoroughly investigated, the status of mental tests of this sort must remain in doubt. But they are too valuable for practical reasons to be discarded wholly; we should rather seek to improve them.

In this connection, we should use, not single tests, but series, involving the principal mental functions (de Sanctis, Binet and Simon, Goddard), and we should recognize that we are not dealing with intelligence as a whole, but only with some of its higher capacities. We need also a better consensus as to what we mean by intelligence.

Especially in dealing with children, we should avoid the use of tests of mental content, which have proved so unreliable, confining ourselves to purely functional tests, using tests of content, like knowledge of spatial and temporal relations, only in a secondary way and with younger children.

For the higher functions of intelligence we should use material involving the ability to work with abstract material, in a purposive way, seeing new relations and breaking up old combinations. A series of experiments, mostly those already tried out by others, designed to test this capacity, is appended. H. W. CHASE.

An outline for the study of American civil government with special reference to training for citizenship, for use in secondary schools. Prepared for the New England History Teachers' Association by its committee, R. G. Huling, W. R. Butler, L. B. Evans, John Haynes, W. B. Munro. New York, Macmillan, 1910. 187 p.

This committee took a long time and held many meetings to bring forth results for which their preface shows they are in a somewhat apologetic mood. They had to agree upon the position of the study of government in secondary schools, its aim, scope, relations, point of contact, method and form of syllabus. After preliminary principles and definitions and the theory of state they begin by the study of local government in district, village, borough, town, city. There is then described the government of the state, nation, of territories and dependencies, and then they discuss citizenship, political parties and the selection of officials. The work is largely a syllabus of topics and devices, with copious references and blank pages for notes, with a reading list at the end.

Elements of plane and spherical trigonometry, by DAVID A. ROTHROCK. New York, Macmillan, 1910. 99 p.

This text is designed to be a basis for fifty or sixty hour course in advanced secondary and elementary college courses. Emphasis is placed upon drill work in trigonometric identities, on applications, practical problems and calculations by means of natural functions.

The training of elementary school teachers in Germany, by I. L. KANDEL. Teachers College, Columbia University, Contributions to Education, No. 31, 1910. 137 p.

After discussing the historical development, the author treats successively of administrative authorities, preparatory training of teachers, normal schools, their curriculum, professional subjects and practical teaching, the teacher at work, the training of teachers in service, the training of women teachers; and then come some conclusions, with tables and references in an appendix.

The training of teachers in England and Wales, by PETER SANDIFORD. Teachers College, Columbia University, Contributions to Education, No. 32, 1910. 168 p.

The systems in vogue in Scotland and Ireland differ fundamentally from the English system and so fall outside the scope of this work, which is the outcome of researches made during two years, to which are added the practical knowledge of a lecturer in Manchester. A brief account of the administration of education in England and Wales is given to serve as a background for this work. Then comes a history of the training of teachers, their preliminary education, an account of training colleges for elementary teachers and others, the teacher in service, the teacher as a civil servant, and ends with statistical interpretation and comparison. The work covers some ground not covered elsewhere.

The nursery nurse's companion, compiled by Honnor Morten. London, Mills & Boon, 1910. 140 p.

This work is written in response to a steadily growing sentiment in favor of training for nursery nurses, a movement represented by the well-known Norland Institute. It was first confined to the training of lady nurses but through the National Society of Day Nurseries has spread to the training of girls of the working class in creches. There is much pressure now brought to bear on the London education authorities to start a trade and domestic school and otherwise help the movement. There is considerable demand for the services of young women possessing some knowledge of young children. The writer advises before beginning his course girls should have spent a year at a domestic economy school and that scholarships for a further six or nine months course should be granted on the recommendation of the heads of these schools. These courses should always be in connection with some institution for the care of babies. There should be lessons on infant hygiene, child nature, story telling, singing, playing games, making simple toys, etc. The chapters describe creches, primary school training, seeking a situation, management of the nursery, children's diet, clothing, amusements, illness, accidents, Catholic nurses, the nurse as heroine.

Home management, a three years' course for schools, by WILENA HITCHING; with an introduction by Alice Ravenhill. London, Chambers, 1910. 214 p.

The development of right-minded citizens depends on the working together of home and school, although from a variety of causes this apparently obvious fact has but recently attracted the attention it deserves. The end of study is the betterment of life, the right care of the body, etc. The chief topics considered in this first year course are the kind of girl who is likely to become a good home manager; she will be first of all cleanly in her person and body, well mannered, and fond of air, exercise, sleep, wholesome food, etc. Second come practical lessons in the management of the home, such as lighting the fire, how to sweep, dust, clean a saucepan, a sink, make a bed, set a table, work on each day of the week, fortnightly cleansing, etc. Under food, too, the treatment of this book is very specific, specifying bread and porridge, bread and milk, boiling an egg, making a cup of cocoa, coffee; pea, lentil, haricot soup; meat, vegetables and puddings for working men; suppers for children and adults. Then comes washing, which is treated in the same detailed way, and very simple lessons upon clothing.

Die Syphilis der Unschuldigen (Syphilis Insontium), von OSKAR SCHEUER. Berlin, Urban & Schwarzenberg, 1910. 239 p.

The Austrian society for fighting sex diseases was founded in 1907 and it realized at the very outset that the great need was the diffusion of proper knowledge among the people. A preliminary survey, which was finished in 1908, showed the prevalence of syphilis and how it was "the pest of the present day." This writer bases his own special report upon a total of 5,670 cases of extra genital chancre. The chief chapters are on the hygiene of the disease, general idea of it, its history, personal observations, pandemic sporadic, and prephotropic cases, statistics. A valuable bibliography is appended.

Character lessons in American biography for public schools and home instruction, by JAMES TERRY WHITE. New York, Character Development League, 1909. 102 p.

This is a very interesting contribution to what may be called moral education. Four pictures of eminent men and women adorn each page, and the salient traits of their lives are epitomized under thirty-two different heads, viz.: Obedience, honesty, truthfulness, unselfishness, sympathy, consecration to duty, usefulness, industry, perseverance, patience, self-respect, purity, self-control, self-reliance, fortitude, courage, heroism, contentment, ambition, temperance, courtesy, comradeship, amiability, kindness to animals, justice, habits, fidelity, determination, imagination, hopefulness, patriotism, and character.

The legal status of rural high schools in the United States, with special reference to the methods employed in extending state aid to secondary education in rural communities, by EDWIN R. SNYDER. New York City, 1909. 225 p.

This work is largely historic and shows the influence of legislation upon the number and location of new schools, especially as influenced by the extension of state aid in certain commonwealths.

The development of school support in colonial Massachusetts, by GEORGE LEROY JACKSON. New York, 1909. 95 p.

The author aims to trace the various methods through which the earliest schools of Massachusetts were supported, showing at the same time the basis of experience for dealing with the problem of support through the close relationship existing between (1) education and religion, (2) education and the support and apprenticeship of the poor; and after partial support by general taxation had become customary to point out the many causes that made general taxation the sole method of school support and thus gave rise to the free school, properly controlled and properly supported.

English grammar schools in the reign of Queen Elizabeth, by A. MONROE STOWE. New York, Columbia Univ., 1908. 200 p.

The history of English secondary schools of the sixteenth century reveals two movements, one destructive and the other constructive. The former culminated in the destruction of the monasteries, guilds and chantries; but before this climax the constructive movement showed itself in the foundation of special schools, as Saint Paul's and the City Grammar School of Bristol. After the destruction of the monasteries came the refoundation of the cathedrals and their schools. The present study is concerned with the independent schools as they existed in the reign of Elizabeth.

Mohonk addresses, by EDWARD EVERETT HALE and DAVID J. BREWER. With an introduction by Edwin D. Mead. Boston, Ginn & Co., 1910. 150 p.

It was a happy thought to put the addresses of these two eminent men, lately deceased, in this form and to dedicate it all to Mr. Smiley, the patron saint of the Mohonk movement.

The story of the rising generation, the Negro in revelation, in history, and in citizenship, by J. J. PIPKIN. Place of publication not given. Thompson Publishing Co., 1902. 491 p.

This is an interesting book about Negroes by Negroes and contains the biographies of scores of the recent and some of the past leaders of the race, with their photographs.

A white song and a black one, by JOSEPH F. COTTER. Louisville, Ky., Bradley & Gilbert Co., 1909. 64 p.

This writer achieved considerable repute by his Pied Piper of Hamlin. Besides their poetic merits, these poems have a distinct value as a contribution to the race question.

David Zeisberger's history of the Northern American Indians. Edited by Archer Butler Hulburt and William Nathaniel Schwarze. Ohio State Archæological and Historical Society. F. J. Heers Printing Co., 1910. 189 p.

It was a very happy thought of Professor A. B. Hulburt to print this ancient history of the Indians based upon his mission on the Muskingum River in Ohio in 1779 and 80. Besides its historical value, the author was a very acute observer and has described many institutions now entirely obsolete and so the work has certain perennial value.

New Geographies. First book, by RALPH S. TARR and FRANK M. MCMURRY. New York, Macmillan Co., 1910. 263 p.

This first book is of great interest and although smaller, marks a distinct advance upon Frye. It contains 322 cuts and various colored maps with appendixes containing reference to description of the prose and poetry of the topics treated in this book for both pupil and teacher. Chief statistics too are relegated to a table and there is a pronouncing vocabulary.

The young forester, by ZANE GREY. New York, Harper & Bros., 1910. 224 p.

This book treats choosing a profession, the man on the train, the trail, lost in the forest, the saw mill, the escape, the old hunter, bears, the cabin in the forest, the pioneer, the fight, the forest's greatest foe and the backfire. It is a tale of the forest rangers by one who had lived and worked among them.

Harper's book of little plays, by MARGARET SUTTON BRISCOE, JOHN KENDRICK BANGS, CAROLINE A. CREEVEY, MARGARET E. SANGSTER and others. Selected for home and school entertainments; with an introduction by Madalene D. Barnum. New York, Harper and Bros., 1910. 142 p.

These plays are intended for children of from about ten to twelve and are adapted for social entertainment, home pastime and school exercises. The great delight children have in "giving a play constitutes a great educational principle," exceeded perhaps by no other form of literary exercise. It enlists the enthusiastic and continued work of the children like almost nothing else and makes a deep impression on them. There are fifteen of these plays in all, with illustrations, stage directions and music.

The Ohio River, a course of empire, by ARCHER BUTLER HULBURT. New York, G. P. Putnam's Sons, 1906. 378 p.

This ornate and copiously illustrated work attempts to give the entire story of the settlement of the Northwest from the beginning when Rufus Putnam started from his old home in Rutland, Mass., to take posession and to organize the country. The old house, which is owned, preserved and repaired by a Massachusetts society for that purpose, has peculiar interest for people of the Western Reserve, an interest which is greatly stimulated by one of the most notable addresses ever given by the late Senator George F. Hoar. The memory of these days is still more fully conserved in the Historic Museum at Marietta College, Ohio, and Professor Hulburt is the vital link between these two centres. Moreover, he is by long study well qualified himself to give the story of the early days and to show the marvellous development which proceeded from the work which General Putnam began.

Class teaching and management, by **William Estabrook Chancellor.** New York, Harper Bros., 1910. 343 p.

This covers instruction and discipline and is intended for teachers, reading circles and a text-book for higher education institutions where teachers are trained. It has grown out of the author's experience as a superintendent and as a lecturer. Starting from the learning processes and the teaching processes, the writer describes department, grade and district school teaching, considers the teacher as an interpreter of the course of study, describes the day's work, its plan and record, control of the class and the individual, classifying, marking, grading, promoting, how to make a good school and class, the class teacher in the industrial arts, the teacher's own life in an age of educational expansion.

Plant anatomy from the standpoint of the development and functions of the tissues and handbook of micro-technic, by **William Chase Stevens.** 2nd rev. ed. enlarged. Philadelphia, P. Blakiston's Son & Co., 1910. 379 p.

This is a second edition of a work published some years ago, plus a chapter on reproduction. Beginning with the cell differentiation of tissues secondary increase of thickness, the author passes on to discuss protection from injuries and loss of water, plant selection, absorption of water and minerals, transport of water and soil solutes, intake and distribution of gases, construction of plant food, transports of food throughout the plant, stoppage of food and waste, secretion and excretion, reproduction, the preparation of sections, use of the microscope, re-agents and processes, micro-chemistry of plant products, detection of adulteration in foods and drugs. The work is illustrated with about 150 cuts.

Life in the Roman world of Nero and St. Paul, by **T. G. Tucker.** New York, The Macmillan Company, 1910. 453 p.

This is a companion piece to the author's Life and Aims of Athens. He believes that the great hope of classical learning lies in the interest which the unlearned public may be brought to feel in ancient life and thought and so he cultivates a vivacity of style and a method of reality. He describes travel within the Roman Empire, a survey of the provinces, the Senate, knights, people, Nero, administration and taxes, describes Rome and its water supply, building material, town house, country homestead and furniture, social day, morning, afternoon and evening, dinner, life in the middle and lower classes, holidays, women, marriage, Roman matron and her dress, children and education, the army, religion, scientific knowledge, philosophy, art, burial and tombs.

Journeys through bookland. A new and original plan for reading applied to the world's best literature for children, by **C. H. Sylvester.** 10 vols. Thompson Pub. Co., Chicago.

This attractive series of books which leaves little to be desired in binding, typography, etc., is the result of earnest efforts to present to boys and girls the best literature in such a way that it will appeal to their imagination interest them and lead them to read for information, enjoyment and inspiration. It is reading outside of school hours that really focuses the taste of a young person and if he is left wholly to his own resources, nothing is more natural than that he should read merely for his present enjoyment and for the excitement that the short lived modern story furnishes so abundantly. The plan of the series is presented at length in the last volume under the title "Talks with parents." The writer does not pretend to have read these voluminous works, but a rather careful cursory inspection inclines him to believe that they constitute one of the best of the many attempts to present well chosen literature to the young.

Travels in history, by MARK TWAIN. Selected from the works of Mark Twain by C. N. Kendall. New York, Harper and Bros., 1910. 171 p.

Superintendent Kendall endeavors here to meet the criticism made that the teaching of literature in our school system is too academic, that the authors chosen are removed from the child's interest or are taught so as to stifle its desire for more extended reading. To counteract this tendency, we must select authors who interpret life with vitality and reality. While we should not over-emphasize nationality, our youth cannot appreciate the best that has been said and thought in the world unless they grasp the democratic spirit which is expressed by the best work of our own literary masters. In Mark Twain, we have the national spirit as seen with our own eyes. He is a master of commonplace and of humor. It would be interesting to see what children really make of such stories as The Connecticut Yankee in King Arthur's Court. We are inclined to think it takes the glamour and romance entirely off and that this kind of crass common sense carried through literature and history would rather rub the bloom off, especially as children have no great sense of true humor.

Child problems, by GEORGE B. MANGOLD. New York, The Macmillan Company, 1910. 381 p. (The Citizens Library.)

These problems are rapidly becoming prominent in the public mind and the author here gives his readers a general view of some of the chief of them and seeks to adapt it to the use of students engaged in college and university work as well as to the general reader. After a general introduction, the first chapter, on mortality treats of its various causes, its rates and different states, children's diseases, the milk problem and supplementary methods. The second chapter is devoted to recent aspects of educational reform, such as the playground movement, medical inspection of schools, training of backward children and the new education. The third, is devoted to child labor, its conditions, physiological aspects, its general effect and legislation. The fourth, treats of child delinquency, its causes, nature, the juvenile court, probation system, reformatory institutions and prevention. The fifth, is devoted to the dependent and neglected child, discussing the principles and methods of child saving, public and private and the various agencies devoted thereto. A selected bibliography of ten pages concludes the work. It is devoted entirely to problems in this country and makes no attempt to be comparative.

World corporation, by KING C. GILLETTE. Boston, The New England News Co., 1910. 240 p.

It is well known by corporationists that economy, stability and absence of friction are striking traits of large corporations. These will continue to form, absorb and grow and no power on earth can stop this process. The author wishes to form a world corporation of which he gives the articles of incorporation, its central office being located at Phœnix, Arizona. Its capital stock is divided into common shares of a par value of one dollar each and certificates of stock shall be issued in denominations all the way from one to 1,000,000 shares. It is not entirely clear precisely what the purpose and work of this corporation is to be, but it seeks to embody many of the best ideals of humanity and evidently is designed to transact its business in general in a way that shall save the present wastage of about 90 per cent. It must centralize the divided manufacturing industries of North America for one thing. It means the emancipation of women for another. Its central building is to be an immense affair of sky scrapers arranged in a circle and supporting a dome of a magnitude the world has not yet seen. It is to revolutionize agriculture, prevent adulterations of food, put politics on a business basis and insure everybody. It is to control and purify business and knowledge, give everybody sufficient but nobody excessive work. Arbitration is a matter of course. Education is to be greatly advanced and everything is to work with automatic perfection.

The home training of children, by A. B. BARNARD. London, Pilgrim Press. 205 p.

The chief headings are fatherhood and motherhood, stages of child life, child nature, first beginnings of training, companions and friends, formation of character, will power and self control, goodness and naughtiness, the question of punishment, morality and religion, habits and manners, mental culture, home teaching or school, value of play, something to do, mother, times of illness, abnormal children, difficulties by the way, looking to the future. This is intended as a practical book, not for teachers but for parents and governesses.

Country cottages and homes, by R. A. BRIGGS. London, Allen, 1910. 133 p.

This is an interesting and copiously illustrated book with chapters on site, aspects and soil, cottages and small houses, moderate sized and larger houses, alterations and additions, gardens, gates, fences and accessories. The book is in excellent type, on good paper, and the illustrations are very attractive, although everything is quite distinctively English. For our own part we must say that more attractive books and houses of this class exist in this country.

Responsibility for crime; an investigation of the nature and causes of crime and a means of its prevention, by PHILIP A. PARSONS. Ph. D. Dissertation, Columbia Univ., 1909. 194 p.

The writer treats crime and the criminal, criminal classes, formula of crime, punishment, heredity and environment, the death penalty, the prison system, jury, justice and restitution, propagation, a remedy, education, progress, retrospect and prospect.

The book of honour; familiar talks with young men and boys, by CANON DAWSON. London, Pilgrim Press. 192 p.

The topics are What is honour? courage, chivalry, manners, self-command, fair play, truth and lies, religion, fashion, work, good boys, the way we learn, if we had known, the slayer of three, in a funk, number one, what to forget and not, for all you are worth.

Boy scouts of America. A handbook of woodcraft, scouting, and lifecraft, by ERNEST THOMPSON SETON, with which is incorporated by arrangement General Sir Robert Baden-Powell's Scouting for boys. New York, Doubleday, Page & Co., 1910. 192 p.

This handbook we believe to represent the very best of all the adult guided organizations for boys, but we confess we have never been able to understand the claims of Mr. Thompson Seton. He is doubtless the fittest man to be its patron in this country but can in no sense be called its father, for the merit here belongs essentially to Baden-Powell, who organized the movement in England without, so far as we know, any knowledge of Mr. Seton's work.

History of the education of the blind, by W. H. ILLINGWORTH. London, Low, Marston, 1910. 167 p.

This is a much desired book as there was really nothing good in English before. After a brief and we must say very inadequate section on the psychology of blindness, the writer gives the story of the beginnings of reading, Haüy, types, Braille, Edison-Bell, Foucaud, writing, typewriters, Dr. Moon, music notations, piano tuning, massage, handicrafts, arithmetic, earlier acts, libraries, magazines, literature, college, the obstacles to progress.

Elementary arithmetic, by DE FOREST A. PRESTON and EDWARD L. STEVENS. New York, Macmillan, 1910. 243 p.

This is the first of a series that offers a complete course in arithmetic for elementary schools and is intended for use by pupils of the third to the fifth year and needs little preparatory preparation on the part of the teacher.

Principles of secondary education. A text-book. By CHARLES DEGARMO. Volume III, Ethical training. New York, Macmillan, 1910. 213 p.

"Something precious in education was lost when the Greek idea of the ethical goodness of wisdom became obscured by neglect. It is one of the principal purposes of this volume to bring into clearer light the moral functions of knowledge and to show how over the bridge of ethical interest youth may be led from understanding to wisdom and from wisdom to its correlative, goodness, and volitional efficiency." Then he proceeds to consider regulative principles, the adolescent in modern society, moral habits, new and old, some cardinal moral ideals, ethical interest as the bridge between knowledge and moral conduct, realizing the ethical value of high school studies, moral aspects of physical training, a general survey of ethical training abroad. This seems to us the best book in the series.

From boyhood to manhood, or Some aids to true success, by DAVID WILLIAMSON. London, The Religious Tract Soc., 1910. 190 p.

This work gives various hints to boys starting in business upon such topics as lodgings, clothing, doing one's work well, changing employment, reading, the simple life, boyhood's ambitions realized, a true gentleman, keep your eyes open, keeping a diary, friendships, building a character, keeping on, debating and speaking, keeping accounts, acquired knowledge, the life of the soul. The work is a handbook for young boys who have left school and have found their first position on the lowest rungs of the industrial ladder.

Controversies over the imitation of Cicero as a model of style, and some phases of their influence in the schools of the Renaissance, by IOZA SCOTT. New York, Teachers College, Columbia University, 1910. 145 p.

The author discusses first the influence of Cicero before 1450, then the controversies concerning him in Sicily, the Ciceronianism of Erasmus, his relations to Scaliger, and various phases of the controversy up to 1600, with a final chapter on the influence of Ciceronianism upon educational practice, together with a good bibliography. The author recognizes the immense significance of Cicero upon oratory and in the domain of pedagogy, holding, however, that it is an influence easy to overdo.

Ries. Easy German Stories. Edited by ERNEST H. BIERMANN. New York, Cincinnati, Chicago, American Book Company. Price 35 cents.

In this choice selection of short imaginative tales taken from "Der Schnitter und andere Märchen," Mr. Biermann presents a little reader admirably suited to elementary work. Attractive in its quaint simplicity and abounding in expressions characteristically German, it lends itself easily and naturally to retranslation. For this purpose the exercises appended for practice, both oral and written, are varied and comprehensive. These, together with generous foot notes which insist upon the frequent review of important rules, furnish an edition both valuable and complete.

Mairet. La Petite Princesse, Edited by EDITH HEALY. New York Cincinnati, Chicago, American Book Company. Price 35 cents.

The same genuine appreciation of the ideals of childhood which has inspired other writings of Mairet's lends a wholesome fascination to La Petite Princesse. While the narrative, similar in essential features to Little Lord Fauntleroy, makes a direct appeal to the juvenile reader, it further commends itself to the beginner by its simple, direct style, affording remarkable ease in translation. Much value can be derived from the exercises for practice in composition, to which considerable space is devoted, if the eye and ear are first carefully trained in the use of the text as a model. The questions following each chapter are excellent as an aid in the acquisition of the spoken language.

Teachers of elementary French will welcome this edition and find it most helpful and attractive in their classes.

Analytic geometry, by N. C. RIGGS. New York, Macmillan, 1910. 194 p.

Bulletin mensuel de l'institut de Sociologie Solvay, Nos. 1-6 inclusive. Janvier-Juin, 1910. Documents divers relatifs à l'organisation de l'Institut.

The attainment of eternal youth; in seven lessons, by HARRY GAZE. Chicago. Published by the author (1910). 87 p.

How to live forever; the science and practice, by HARRY GAZE. Chicago, Stockham Publishing Co., n. d. 205 p.

Problems of your generation, by DAISY DEWEY. New York, Arden Press, 1910. 104 p.

Public speaking for secondary schools. Second edition, by ROBERT I. FULTON and THOMAS C. TRUEBLOOD. Boston, Ginn & Co., 1910. 250 p.

Physics, by CHARLES RIBORG MANN and GEORGE RANSOM TWISS. Revised edition. Chicago, Scott, Foresman & Co., 1905. 424 p.

Mentally deficient children; their treatment and training, by G. E. SHUTTLEWORTH and W. A. POTTS. 3d ed. Philadelphia, Blakiston, 1910. 236 p.

The periods of English literature. Outlines of the history of English literature with reading and reference lists. By LOUISE POUND. The University of Nebraska Press, Lincoln, Neb., 1910. 60 p.

A CIVIC INSTITUTE ON CHILD LIFE

For two successive years there has been held in Seattle, a May Institute for the study of the city, by the city and for the city. This last May the Institute confined itself entirely to the questions connected with Child Life in Seattle, but this more specialized field was found to cover all departments of city activity almost as thoroughly as the general Civic Institute held the year before. The Institute was arranged by very busy people, at very little expense, and accomplished several definite results in the correlation of various societies devoted to social work.

The first Institute, held in May, 1909, immediately preceding the Alaska Yukon Pacific Exposition, was based on an appeal to the residents of Seattle to "Know Their City" before they began showing it to strangers. It was a very successful three weeks congress, and was the beginning of a "Know Your City" Movement in the Northwest, resulting in similar Institutes in Portland, Walla Walla and Spokane, and in the repetition, a year later, of an institute in Seattle, devoted to the particular question of Child Life.

This Institute was carried on through a committee of eight, appointed at the first "Know Your City" Institute. The Y. M. C. A. Building gave its auditorium, the speakers gave their services. The only expense was for printing a sufficient number of programmes to distribute in large quantities throughout the city, and this expense was met by voluntary sustaining memberships of $1.00 each, which were solicited only by means of an announcement on the programme that such memberships were desired and might be sent to Dr. Sydney Strong, Chairman of the Committee. As there was practically no financial outlay, the success of the Institute had to be assured through such publicity as the newspapers would give, and this was secured by the simple expedient of keeping close to matters of immediate interest in the life of the city, and by arranging the programme to include officials who were actually dealing with public affairs, and whose opinions and actions had news value. This plan presents other advantages than that of mere publicity. It makes an institute immediately practical, and an actual force in the city's life.

Dr. Hastings H. Hart, Director of the Department of Child-Helping of the Russell Sage Foundation, was secured for the opening meeting, as he happened to be in the west at the time. Otherwise the speakers were all Seattle men, actively engaged in work among children. The sessions lasted for ten days, and covered such general subjects as Child Labor. Education, Child Play, Child Health, Remedial Agencies, Destructive Agencies, to each of which topics a session was given. The actual subjects were short and specific, such as Feeding of School Children, Girls' Homes, Child-Placing Institutions, Story-Telling at Schools and Playgrounds. In nearly every case the speaker was limited to ten minutes, and was asked to confine himself to the brief statement of what was actually being done in Seattle, and of the immediate next steps proposed by his department or organization. Ample time was allowed for questions or discussions, with a two minute time limit.

This Institute on Child Life was marked, as is the entire "Know Your City" Movement, by strict adherence to two principles. These have insured its success. It aims, first, at spreading among the general public knowledge, not merely of the evils in the city, with which too many of our surveys have too largely dealt, but also, and primarily, of the resources available to counteract those evils. In doing this, it does not investigate from without, thus arousing antagonism among the citizens themselves, but invites open discussion on the part of city officials and heads of organizations, acting on the principle that the best way to obtain good work from a city official, is to let him discuss with a sympathetic audience the good work he is already doing, rather than to hurl indiscriminate criticism at him from the outside. In fact, a large part of the good effect of these Institutes have been in their direct effect on the city officials themselves, men who, like other men, are rather well-intentioned, but who receive as a rule no suggestions of any kind after they come into office, except through the selfish demands of various private interests. If the good citizens and the officials can occasionally confer together, the effect is sure to be good for both parties, whether the goodness induced or encouraged in the official be from genuine interest or merely from motives of policy. The potent effect of suggestion has long been recognized in psychology, but it has been too little used by social workers in their treatment of the men through whom, after all, efficient or inefficient work for the city must come. Its practical application is perhaps one of the main contributions of the "Know Your City" Movement. The second meeting of the Institute was held in May, 1910, and proved successful beyond expectation. The attendance at the eleven sessions averaged 200. Two notes were struck throughout the Institute: first that the home is the chief reliance for training good citizens, and second, that environment is of chief importance in the life of the child. The child that is homeless must be provided with a home rather than placed in an institution. "The committee believes that the time is now ripe for the organization in the near future of a Children's Bureau in Seattle that shall be composed entirely of volunteer workers, from all classes and nationalities, whose one object shall be the proper turning of the public mind towards the interests of the conservation of child life." ANNA LOUISE STRONG.

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